

A CREED FOR SCEPTICS



MACMILLAN AND CO., LIMITED
LONDON • BOMBAY • CALCUTTA • MADRAS
MELBOURNE

THE MACMILLAN COMPANY
NEW YORK • BOSTON • CHICAGO
DALLAS • ATLANTA • SAN FRANCISCO

THE MACMILLAN COMPANY
OF CANADA, LIMITED
TORONTO

A CREED FOR SCEPTICS

BY

C. A. STRONG, LL.D.

FORMERLY PROFESSOR OF PSYCHOLOGY
IN COLUMBIA UNIVERSITY

MACMILLAN AND CO., LIMITED
ST. MARTIN'S STREET, LONDON

1936



✓ 19238

104
592 C

Checked 1955

CHECKED 1955
B

CHECKED 1956

✓ 50

COPYRIGHT

Checked 1959

Checked 1959

R. 12. No. 00021629

PREFACE

A CREED FOR SCEPTICS is the title of the last of these essays, but also, in a wider sense, of the collection of them. The word sceptic is used in the popular sense of a disbeliever in traditional religion—not in the technical sense in which, in the first essay, scepticism is denounced as a fallacy. The Creed is a statement of what, in the author's opinion, one may reasonably think about the universe and about human life.

The philosophy proposed as its basis in the first four essays is the product, at last come to maturity, of an enterprise to which my days have been given. Dare I confess it? I have always been a great admirer of Darwin, and I said to myself early that if I could explain the origin of consciousness as he explained the origin of species, I should be completing the theory of evolution and doing the world a service. I never doubted that the origin of consciousness was explicable; and I felt confidence in my power to explain it, if I studied the problem long enough and made my ideas sufficiently clear. How far I have succeeded in this ambitious project, the reader must judge; I do not think I have wholly failed.

Previous statements of my solution have not, apparently, impressed my contemporaries. Perhaps I have not made my ideas sufficiently clear *to them*: and since my belief in these is undiminished, I think it my business to urge them once more, going into the finer details and striving manfully to remove objections. The objections I have usually heard have been based on failure to understand.

I confess that my master-key—the definition of the nature of being—sometimes seems to me a rather barren abstraction, and that the difficulty of making people believe that there is in suns and atoms anything of the nature of feeling is so mountainous that I sometimes wish I had devoted my energies to something else, such as writing poetry or helping to bring about the millennium. Yet, if this nature made possible the birth of

consciousness, barren is hardly the right adjective; the conception flows inevitably from its premiss, the functional nature of awareness; and suns must have sentience that earthlings may have awareness.

The problem of the origin of mind presupposes some conclusion regarding the relation of mind and body; and this, in turn, presupposes a theory of perception. I am very decidedly of the opinion that scientific epistemology must precede logical analysis if the latter is to lead to true solutions, and that a sound theory of perception is the necessary propaedeutic and starting-point of philosophy. Hence the first essay, presenting a theory of knowledge which may be described as a defence of knowledge against philosophic doubt. Critical realism, that is, the duality of sense-datum and real thing; the recognition of internal perception as analogous to external, thus providing a real self for sense-data to be given to; the atomic constitution of this self, and consequent production of sense-data by fusion and projection of the atoms; the unsubstantiality and inefficacy of data, but, on the other hand, their essential office of presenting substantial and efficacious things—these are the stages by which the theory arrives at its common-sense conclusion that things are real and that perception is a knowing of them.

I continue to use Mr Santayana's valuable distinction of *intuition* and *intent*, although I no longer think the datum of intuition an essence, and draw the two functions more closely together than he does. Instead of speaking of *introspection*, an ambiguous and misleading word, I now use Professor Stout's excellent term *internal perception*, which has the proper realistic flavour and puts the self on the same footing as external things. *Anoetic sentience* is also a phrase taken from his vocabulary.

The second paper, "Elucidations", goes into the details of the theory, replies to objections, and discusses connected points of greater or less relevance. Perhaps I should apologise for the amount of repetition in these essays. It may at least have the merit of presenting their thesis from different points of view and driving it home. Philosophical ideas, in my experience,

must be returned to again and again, and *lived with*, if one is to get them clearly and judge them fairly.

It is not merely a theory of knowledge, but a whole naturalistic philosophy, the truth of which is here in question. This philosophy is stated in outline in the third essay. As this essay was written in French, and makes its points in what the writer devoutly believes to be a French way, it seemed a pity to translate it. I make no claim that the analysis of space there given is sound. But I have a very different feeling about the analysis of time, with its contention that the present is inconceivable except as an instant. I would also draw attention to the substitution of a pluralistic for the orthodox Leibnizian conception of consciousness, which seems to me a necessary advance. The essay ends with a reconciliation of freedom with determinism which might possibly have satisfied William James. Perhaps he would not have liked Voltaire's contribution to the subject in the fourth essay.

Since writing the foregoing, I have had the advantage of reading Professor Perry's admirable account of James's life and thought, and refreshing my mind concerning his philosophy and that of Bergson. The result has been to impress on me anew the importance of the part which a correct theory of perception may yet play in the reorganisation of philosophy. These thinkers were mainly interested in the question of the validity of concepts, and this led them to content themselves with comparatively vague views of perception—James's "telepathic confluence" of experience with the real, Bergson's "intuition" of an extract from it. Both are *neo-realists*. In my view, the entities which neo-realism affirms to be real things capable of continuing to exist when unperceived are in truth ideas which exist, or rather be, only when things are perceived. It is a realism that has not yet broken with the idealism of the post-Kantian philosophy. In other words, while heartily accepting their empiricism—their principle that concepts must faithfully conform to percepts and that these alone give primary access to the real—I reject their experientialism and regard it as an injecting of mind into matter. Leaning on this mistaken theory of perception, they unduly humanise the universe. The only right

intellectual attitude toward the universe is, in my opinion, that of science.

In the fifth essay, the Creed, I draw the conclusions that follow from my premisses, and express my present feeling about the world and life in it. I could say much more, particularly on the credit side—for I have not mentioned the wonderful fecundity of Nature, her continual restless production of the new and strange; nor the tendency of animals, and of animals' brains, to become ever more complex; nor the amazing achievements of the spirit of man, in music, architecture, painting, poetry, and the delights with which these enrich his life. My reason for not doing so is, that the joys of existence are obvious and the growing complexity of life a commonplace, and I wished to concentrate attention on what is not so evident, the nature of the world in which we find ourselves and the existence of fixed standards both of thought and of conduct. Whatever absences may be noted in this Creed for Sceptics, it at least affirms that Freedom, Truth, and Goodness are not illusions. It offers, if you like, only an irreducible minimum, without which life would be chaotic. On such a minimum a courageous man may live.

CONTENTS

	PAGE
PREFACE	v
I. A THEORY OF KNOWLEDGE	1
II. ELUCIDATIONS	17
III. L'ÊTRE ET LE DEVENIR	59
IV. VOLTAIRE ON FREE WILL	85
V. A CREED FOR SCEPTICS	90

I

A THEORY OF KNOWLEDGE

No one, I think, can have spent more years than I have in reflecting on knowledge, and in trying to explain how, through the doorways of sight, hearing, and touch, it enters the mind. I have formed my theory slowly, eliminating errors when I discovered them to be such, and sometimes, though rarely, making improvements that transformed it. Owing to a late improvement, it has assumed what I must suppose to be its final form. This theory differs in a number of respects from any other theory of knowledge with which I am acquainted. I ask the reader's leave, therefore, to set it before him, emphasising the differences, and elucidating points in it which are unusual, difficult, or likely not to receive due consideration. It is a complicated theory, from the necessities of the case, but its parts form a connected and logically self-consistent whole. What is new in it rests on rigorous deduction from facts of physiology. It achieves its end. It replies to scepticism and to agnosticism by convicting them of omissions and misconceptions of fact—thus showing knowledge to be really knowledge. That, surely, is what a theory of knowledge should do.

1. *Duality of object and datum.*—The theory is a form of critical realism, that is, of the doctrine that external objects are known not intuitively but through the medium of a substitute. This is proved by the fact that when a distant cannon is fired the flash is seen before the sound of the explosion is heard. The seen flash and the heard sound are both, in different degrees, *later* than the real event, and, therefore, cannot be identical with it. In looking up at the starry vault, we see simultaneously objects that existed and from which the light set out a varying number of centuries ago; these past objects are known by means of a single substitute which contains them

all and is in the present. In double vision *two* substitutes are seen where there is but one thing—a clear proof that they are substitutes.

2. *Internal perception.*—It should not be overlooked that there is a second kind of cognition, worthy to be placed on a footing with external perception, but disclosing an entirely different kind of object, namely, that internal perception by which we are aware of our feelings. Examples of feelings are hunger, thirst, pain, fatigue, or, when all unpleasant ones are absent, the sense of well-being. Feelings are states of the self; internal perception is knowledge of the self. The visual, auditory, and tactile sensations by means of which external objects are perceived, and of which we become aware when a light is dazzling or a sound unpleasantly loud, are likewise objects, possible objects, of internal perception. So, too, are the muscular sensations that make us aware of our movements.

Feelings, however, are not all bodily or peripheral. There are some which, when internally perceived, make us aware of the core of the self. Amusement at a joke—disappointment—desire in any form—the element of will that enters into anger: who can doubt, when he is conscious of them, that he perceives the momentary centre of his being? Nor do the bodily feelings fail to include the central self. Fatigue may be mental as well as bodily. When we are really hungry, we are aware of much more than the physical gripings; we are aware of a general state of weakness and want, which is a condition of the entire self. In toothache, we are acutely aware of a most intolerable state of the self, making use of the mind impossible.

Now I come to the step forward which critical realism requires. It is usual to suppose that what is cognised in internal perception is *the datum* pain or fatigue or well-being, visual or auditory or tactile sensation, or whatever the state may be. But is it not more reasonable to think that, when I burn my finger, what is cognised is the destructive process occurring there, to the end that I may remove my finger from the hot object; that when I feel fatigue, what is cognised is my state of exhaustion, so that I may be moved to rest? And, by parity of reasoning, is it not more reasonable to think that, when I am

conscious of amusement or disappointment, of anger or desire, what I perceive under the form of this datum is the real state in which I then am? This view makes it possible for visual, auditory, or tactile sensations to exist in us unperceived when they are our means of perceiving objects.

In short, the view we reach is that in internal perception there is the same duality of datum and object as in external.

3. *Nature of the real problematic.*—If neither in external nor in internal perception the object is a datum of intuition, its nature as it is in itself may differ to a greater or less extent from the account of it given by the substitute. We cannot be sure that objects of external perception are purely material, or that objects of internal perception are simply and solely mental. This opens up a new possibility. There is one case in which external perception and internal perception seem to converge: feelings in the self are referred to the same place as processes in the nervous system. Is not the explanation this, that these two modes of cognition reveal the same object—the self? I shall assume that this is so, for it solves in the simplest and most natural way the problem of the relation of mind and body.

The question then arises, whether the two modes of cognition reveal the self truly. Note well that the alternative to giving *some* credit to knowledge is having no knowledge of the real at all. The right way, I think, is to assume knowledge to be true, and let the assumption either correct itself (as in the case of secondary qualities) or confirm itself by the simplicity of the explanations which it makes possible. I shall therefore assume, but only as an hypothesis awaiting confirmation, that both these modes of access to the self display it with some measure of truth. Let us take them up, one after the other, and see just what this means.

It means, in the case of internal perception, that when this form of cognition shows states of the self as having the nature called feeling, it shows them truly. Why indeed, if we trust external perception when it shows its objects as in time and space, should we not trust internal perception when it shows its objects as feelings?

Difficulty will be caused here by the customary conception

of feeling, and use of the word: namely, either for the bare datum pain or fatigue or whatever it is, or for this datum together with the intuition of it. But, in assuming internal perception to be truthful, I am not denying the datum or the intuition of it: I am only asserting that the datum reveals an object. Is it not possible that the critic has habitually overlooked the fact that there is an object—the state of the self—of which the datum is the appearance? And, if so, why should not this object resemble the datum in being a feeling?

It is useless to protest that a feeling which is not felt—that is, intuited—is not a feeling at all. That feelings can exist when not intuited (just because they compose the self which intuits) is evident from the case of external perception. How could we see or hear or touch *things*, if there were not visual or auditory or tactile feelings in us which are not data of intuition, the data of intuition being the presentments of the things? Our knowledge of the feelings is indeed subsequent, but it is trustworthy. After hearing a bell I may become aware that I heard it by means of a vibration of my own being; after seeing a light, that it was made present to me by an inner glow. These states of the self must have been feelings at the moment when I used them to see and hear.

If we trust internal perception when it shows our states as feelings, we should equally trust external perception when it shows them in the form of nervous processes. It is usual to suppose that the nervous process to which a feeling corresponds is confined to the cerebral hemispheres; yet it may, for aught we know, include the processes in the sensory and motor nerves. In either case, external perception shows the self to be composed of spatially separate parts. There are momentarily inactive parts in which memories are stored or on which instinctive tendencies depend. In the wide-awake self there is a focal active part, and external perception shows it to be composed of a multitude of minuter parts in a complex arrangement. These parts interact, and therefore are forces quite as much as feelings. The arrangement makes of them a whole, determining their manner of interaction and of action upon other things; but what acts is the parts—the minutest ones. These, alone, in their

arrangement, can be said to exist in instants, and to change their place in the passage from one instant to the next. They alone, with the force in them determining their changes of place, are the ultimately real; whose nature, if internal perception does not deceive us, is feeling.

Combining the information derived from external perception with that derived from internal, the result we reach is that the self, at least in its wide-awake part, consists of minimal feelings which are forces.

For elements so minute, a term is requisite which has not the defect of too strongly suggesting the large-scale feelings of human beings; a term suggestive of the rudimentary. I propose therefore to call these minimal feelings *sentients*, and to speak of a group or flow of them as a state of *sentience*. But it must not be forgotten that sentience is also force, and that a state of sentience may explode in an act of will.

4. *Reason for the duality of datum and object.*—This may be stated as being, either that processes of conduction through air or aether intervene between the object and its being perceived; or that its being perceived depends on a process in the nervous system; or, finally—and this is the mode of statement I prefer—that *sense-data are products brought into being by the self*. Not consciously, indeed! The production of sense-data is automatic; it goes back to the first origin of each of the senses (for these would be useless if they did not show the external), and is thus of the hoariest antiquity. That is why it is so deeply ingrained, and why it has so long escaped notice. Yet I think it will be possible to explain how sense-data are produced.

If it should be objected that sense-data are logical essences, and therefore not a sort of entity that can be produced, I grant that what is really produced is a whole consisting of a datum and the intuition of it (data being incapable of existing unless they are intuited), but point out that you cannot produce the intuition of a datum without producing the datum.

5. *How sense-data are produced.*—When rays of light act on the retina, they call forth a sense-impression, which to external perception appears as a nervous process and to internal perception as a sensation, but which in itself is a group or flow of

sentients. Let us call this group or flow *the visual sentience*. Its parts are arranged in a certain way, and in virtue of the arrangement it has characters, which reflect the characters of the object. Thus it is an effect of the object, and it to some extent resembles the object: but it is not for that reason cognisant or aware of the object. It is simply a state of feeling in the self.

The inherent unawareness of the visual sentience may be proved (I come here to one of the rigorous deductions referred to at the beginning) by considering its physical presentment, the sensory nervous process. This process is a remote effect of the object, and reflects it, but in itself it is simply a physical process like any other; no one would think of supposing it to be cognisant of the object, or aware. It follows that the visual sentience, which is the real state appearing as this nervous process, is not cognisant of the object or aware. It is simply a self-contained state of feeling. How, then, does awareness of the object arise?

By the visual sentience evoking a motor response addressed, not to itself as a state of feeling, but to the external thing that called it forth. This external addressing of the motor response, its appropriateness to the object and not to the feeling or to the feeling only as reflecting the characters of the object, is a remarkable peculiarity of the passage from sensory to motor, a most ingenious device. It puts the animal in touch with the environment, on which it depends for food and safety. It causes the visual sentience not merely to reflect the external thing, but to convey or present it. Nerve-currents from the muscles report the response back to the brain and evoke muscular sentience, which unites with the visual sentience in producing this result.

In determining the motor response, the visual sentience acts as if it *were* the object and as if its characters were the characters of the object. It is like an actor on the stage who is Hamlet. *The fictive presentment of the object, thus engendered, is the sense-datum.* That concern with the object which the visual sentience had not inherently, it now has functionally: *and this function of presenting an object is awareness.*

The motor response has two phases, one ocular, the other practical. First, the eyes are turned toward the object, and

converged and accommodated until the visual sentience becomes clear. The muscular sentience reporting this adjustment causes the object to be seen as in a certain direction and as at a certain distance. Secondly, the muscles at large are called into sub-activity and prepared for action should action be required. Action is a dealing with things, and the muscular sentience reporting this incipient action therefore yields our sense that what we see is a thing. The evoking of the motor response by the visual sentience is *attention*, and in both phases the attention is turned outward.

Now, in turning the attention outward, we have turned it away from the visual sentience as a state in us, and fixed it solely on the external thing and the characters which the visual sentience shows this thing to possess. These occupy the attention to the exclusion of everything else, since it is they alone that concern us. Thus the visual sentience reveals the external, but remains itself concealed, as a feeling.

It remains concealed as a feeling, but not by any means as a fact: for its being stands, Hamlet-like, for the being of the object. The revelation, in other words, is so bound up with the feeling that makes it, that the latter appears as itself external. We cannot react as if a state of ours were external, and do so regularly and automatically, without its appearing to *be* external. Sounds, though as sentience they are vibrations in us, are heard as external events; lights, colours, and shapes are seen as external things. It is as if the sentience had been transformed into the sense-datum: and it has, in literal fact, given rise to one. Given rise to one, we may say, through the imputation of a false externality. Thus sense-data arise by the internal being treated as external—a harmless fiction.

There is another factor in their production, which must not go unmentioned. Since we become aware of anything by having a feeling and being led by it to react to the thing in question, it follows that parts of the feeling too minute to move us to reaction—all its finer parts, that is to say—will have no parts corresponding to them in the sense-datum; or will appear there only in the form of unanalysable qualities, varying in their nature with the particular arrangement in space and time of

the parts. It may be that this is the way in which colours are produced.

A glance at the other senses will show how closely this theory conforms to the facts. In touching the table, all that I actually feel is a compression of the skin, but I do not attend to this feeling; I seize its meaning, and say that what I experience is hardness. Hardness of an external thing, for I cannot but be aware that my act of pressing is directed upon something other than myself. When I lift a pail of water, the handle pulls hard upon my muscles, but what I become aware of is the object's weight. The pleasant smell becomes the external quality called perfume, the pleasant taste becomes a sweetness in the food. In all these cases, sight and hearing included, we can at any moment stop perceiving the external and turn our attention to the feeling—as must needs be possible if, in the drama of sense-perception, the actors impersonating objects are one's own states of sentience.

6. *Nature of the sense-datum.*—Since the externality of the sense-datum is fictitious, and since its simplicity is false to the complexity of the real, we have no choice but to set it down as a mere apparent, whose being depends on its appearing and lasts only so long as it appears. Sense-data, as Hobbes and Locke said, are *phantasms*, without substance, power, or continuous existence. Nothing could be more false to their nature than to suppose that they exist when not intuited and constitute the reality of physical things.

Some writers consider the sense-datum to be a mere quality or nature, which in perception is attributed to the real but un-intuited thing—in fact, to be a universal. I do not wish to be dogmatic, in a matter where the greatest fineness of discrimination is requisite to avoid mistakes; but this view seems to me to draw the line between appearance and reality in the wrong place. It sees in the sense-datum only the visual or auditory or tactile part, and overlooks the contribution made to it by the muscular feelings. These, too, are externalised, the ocular ones yielding (if I am not mistaken) seen distance, that colourless void which seems to separate us from the coloured surface seen; while the practical ones yield our sense of the coloured surface

as bounding a thing, that is, an embodiment of force. Evidently what requires action on our part is force in things. What is given in vision is thus not mere colour, or mere colour at a distance, but a coloured thing. The datum is not a universal, out of time and space, and identical whenever met with: it is a particular—the substitute showing this particular thing as it is at this particular time. The antithesis of given and not given is thus not between attribute and substance, but between appearance and reality.

It is important, in conceiving the sense-datum, not to abstract from the conditions in which alone it arises—as we do, if we fix our attention on the bare datum, and ignore the motor response to which it owes its origin. This is to eliminate knowledge before beginning to analyse it. In reality the sense-datum, while in itself a mere apparent or apparition, is in its office the appearance of a thing to a self—and so, essentially, a bridge over which the latter passes to the externally real. To use a more adequate simile, it is essentially a picture of the real which supposes the bridge to have been crossed. For the datum conceived as depicting, perhaps the best term is the traditional one, *phenomenon*.

7. *Doubt as to the existence of the real.*—In virtue of the muscular feelings which enter into its composition, the sense-datum is an apparent *thing*: in virtue of the motor response which these feelings report, the apparent thing is believed to be *real*, apparent thing and real thing being identified. Scepticism arises through ignoring the motor response, and thus (in theory but not in fact) extinguishing the intent which selects the object and the instinctive trust which pronounces it real.

In vision we not only experience coloured things, but coloured things which we believe to be real. Go out into the garden, and consider what is implied by your behaviour: you will find that it is real things—flowers which you might pluck and walls against which you must not run. Real things are present to you in so far as they are distant, for distance is from the body, and what is distant from the body must be real like the body; they are present to you in so far as your attention is stirred and you are made to prepare for action, for action is a dealing with real

things. They are not present *in propria persona*, but present by substitute and as the necessary implicate of your directed glance and your active concern. In touch, still more obviously, what is implied by your resisted pressure is a resisting real thing.

But these outer reals, it will be objected, however tended toward and grasped at, are not intuited. We lack evidence of their existence!—In this objection the prejudice speaks that intuition, and only intuition, is knowledge. This is so far from being true that, on the contrary, intuition never arises by itself alone, but always as the inner aspect of an act of cognition dealing with the external and unintuited. That this is so, is proved (another rigorous deduction) by the fact that the motor response, on which we have seen awareness to depend, at one and the same time refers to the real and generates a sense-datum disclosing it. Since the one act inevitably has both these effects, intuition is inseparable from cognition.

All this may be so, I hear some one reply, but, in the end, you are forced to fall back on belief. You do not and cannot prove that real things exist.—The reply shows an imperfect realisation of the nature of the attitude referred to. This is not ordinary belief, as likely to be false as true. It is a primary inborn instinctive presumption, necessary to there being such a thing as knowledge at all. Necessary, no less, to thought. To question it, and still think, is to contradict oneself.

This consideration gives, I think, the *coup de grâce* to scepticism. Such extravagant doubt is a malady of too fine-spun thought, an idol of the closet and the night lamp. Seen by the light of day, it turns out to be inconsistent with thought, and in that sense absurd, besides being an impossible attitude in practice. How can I doubt the external reality of the table on which I rest my arms, of the pen I hold in my hand, of the food I prepare to put in my mouth? If I do, must I not go further and doubt the reality of my mouth itself, of the heart and lungs whose continued action keeps me alive, of the brain whose inner being is perhaps my own?

The need for instinctive trust is a consequence of the looseness of the cognitive relation, as Nature, accumulating chance

variations, has in fact brought it about. But this loose relation, if naturally used, yields knowledge, which later knowledge confirms; and we have no *other* means of knowing, or even of thinking about the non-given. Scepticism ignores the real situation, and is therefore as mistaken as it is unnatural.

8. *Doubt as to the nature of the real.*—We are not so absurd, some careful thinkers will say, as to doubt the existence of the externally real; but, owing to the fact that real things are known by means of substitutes, we doubt the possibility of knowing its nature. The nature of the real is inaccessible to knowledge.

On first hearing agnosticism propounded, one is tempted to ask why we should have sense-data at all, and particularly such finely differentiated ones, if they tell us nothing about the real. But let us hear the arguments in its favour. Cognition is a function brought into being for the sake of action, not to satisfy vain curiosity. For this purpose it is not necessary that sense-data should photograph reality, it suffices that they be symbols of it. Sensible qualities like hot, sweet, hard, can obviously only be symbols. What a wide difference there is between the real as we see it, and the real as it is shown to be by molecular physics!

These arguments may make agnosticism appear judicious, but they admit of replies. There is no denying that sensible qualities are secondary: but “simplification” explains it—explains them, note, rather as confused perceptions than as wholly mistaken ones. Symbols can be useful only if their relations correspond to the relations of real things. No doubt cognition exists primarily for the sake of action, but action needs cognition to guide it precisely because cognition is to some extent knowledge of the real.

Symbolic knowledge of it, the agnostic rejoins. The relations of symbols must correspond to the relations of real things; true, but they need not *copy* them. Real space is not necessarily like the space we see, real time like the expansible and contractible medium we feel. As for the nature of what is *in* real space and time, it is wholly concealed from us.

This agnostic thesis interposes so wide a gap between the data of consciousness and what exists externally, that knowledge loses its transcendent virtue. *That* something exists out-

side of us, we can know, but *what* it is, never. Not so long ago, it was plausibly maintained that we could never know the chemical composition of the stars; but spectrum analysis has negatived that *ignorabimus*. I wonder whether psychological analysis may not perform a similar function for time, space, and substance.

Agnosticism is a conclusion drawn, at bottom, from a certain view of consciousness. Consciousness has always been the great philosophical mystery, a thing so extraordinary in its attributes that it could only be supernatural. Consider the importance of this view of consciousness to supernatural views in general, and you will see why any lowering of the status of consciousness is sure to be stoutly resisted. Philosophers are still under the domination of this view—even those whose psychology is “without a Soul”. They can see no common term between mind and matter; hence the readiness with which they admit that the nature of matter cannot be known.

The situation is completely altered when consciousness is seen to be an external function of the self, and the self to be a part of the natural world. The two parts of this world, self and things outside it, become friendly and capable of throwing light on each other. They become so, because sense-impressions, given to internal perception as sensations and to external as nervous processes, *are of the same general nature as the outer things which it is their function to reveal*. Let me go through the list of sense-given characters and natures, and show in detail how light on the nature of the real may thus be thrown.

Take space first. Is real space—the space in which this table exists—of the same nature as phenomenal space, the space of the visual sense-datum? The question appears at first sight unanswerable, and can be answered only by our taking a round-about path. Let us modify it a little, and ask whether the visual sentience by means of which we perceive the table is in space, and in a space like that of the visual sense-datum. Our two avenues of approach to the visual sentience, external and internal perception, show it through the medium of substitutes, and are therefore open to the agnostic’s suspicion. How, then, shall we reach it?

By passing in thought from the visual sense-datum to the state of the self on which it depends for its apparent being. Visual sense-data, we have seen, are formed out of visual feelings by making no other changes in these than the imputation of a false externality and the covering up of their finer parts. It follows that phenomenal space will be like real space—that is, be of the same nature—except that space will be shown only in large wholes, and with the smaller parts concealed. Vision, as respects space, will show it truly but in the large—show the wood but not the trees.

I do not deny that ultimate space—that which joins the smallest constituents of the real—is a thing whose nature needs further clarification (indeed, I have elsewhere attempted, not very successfully I fear, to clarify it): I am only protesting that visual space has its degree of truth, and is not a mere symbol devoid of revelatory power. Why indeed should Nature be at the expense of producing an entirely new kind of space to serve as a symbol, when she had real space and could produce phenomenal space by covering up its finer parts and externalising it? To those who decline to accept this view I leave the alternative, that their bodies are not in such space as we outwardly see and inwardly feel, but in a system of relations equally manifold, and spread out in some different sense of the words.

It may be interesting at this point if I recall how I was led to my theory of consciousness as the external function of a self spread out in space. It was by reflecting on the spread-outness of the visual field, which involves a multipleness of parts seen distinctly at the same time. It is hardly believable that a simple and indivisible seer is the eye to which this vision of an extended field is given. But if the seer is spread out like the field, and his seeing a use of what is in him, extension and multipleness, to become aware of multiple and extended things outside him, this peculiarity of vision is intelligible. Now the retina is extended and multiple; so is the visual area in the brain. The “unity”, that is, simplicity and indivisibility, is that of the function—of parts co-operating harmoniously to produce a result, seeing and what is seen; it is like the simplicity and indivisibility of a good microscope.

Next let us consider time. In time as phenomenally given, there is the same contrast as in the case of space between large parts that are visible and minute parts that are invisible. The instants of which, as consisting of presents, time is composed, the creative action by which each earlier instant of the real produces a later instant, are covered up—it would serve no vital purpose for them to be experienced. We experience (for primary memory is an integral part of cognition) only great blocks or stretches of time. But since the states of sentience by means of which we experience them are themselves in real time and their sequence determines the phenomenal sequence, the blocks or stretches are wholes accurately corresponding to the real temporal fact. When one listens to a symphony of Mozart, the succession of tones, the pace, the intervals, the qualities of the individual tones, precisely reproduce the blowings and scrapings, the vibrations of strings and of air, which are the real events executed by the orchestra. We experience time, then, truly though only in its large-scale relations.

Of causation, which is the real not re-creating itself merely but re-creating itself changed, the same may be said. We are powerless to experience the changes of ultimate fineness in which the onward progress of the real consists: we experience only large wholes of change. But when we observe that a volition is regularly followed by a movement, or a felt need by an appropriate act—as when we are hungry and take food—we are not mistaken in thinking that there is a causal relation, or rather an infinite series of causal relations, between the antecedent and the consequent. Uniform sequence may be causal production, because time itself is the real reproducing itself and for the most part reproducing itself changed.

Time, space, and causation have thus been shown to be truly disclosed in experience; and they comprise all of the real about which the question of knowableness arises, except its nature. This at least, it might be thought, is beyond the reach of knowledge.

But consider again how sense-data are produced. It is by taking a portion of the real, falsely externalising it, and covering up its finer parts. These changes do not alter its nature.

Then that nature—the nature of this particular portion of the real—must needs appear in the sense-datum. What is it but that luminous presence, that obviousness, that actuality which constitutes the immediate being of the sense-datum and is the bearer of all particular qualities? This immediate being is our own being, made by a fiction to appear as outside us and by a suppression to appear as simple.

This nature, in the special form in which the sense-datum exhibits and the state of the self possesses it, is doubtless a very exceptional occurrence in the universe as a whole. The physical rendering of the state—the process in the nervous system—shows it to be very complex, and feeling having this special sort of complexity is clearly exceptional. But this complex feeling has arisen naturally out of the rest of the real, and the rest of the real must therefore be of a nature capable of producing it—that is, be of the same *general* nature. As physical things outside the body are of the same general nature as the nervous system, so real things outside the self are of the same general nature as states of the self.

We have agreed to call this nature *sentience*—which means feeling of the most rudimentary sort, broken up into hyper-atomic parts, each of which is a varying quantity of force. One further characteristic must be added to make the conception of sentience exact. It is *anoetic*. That is, it is inherently unaware, of itself or of anything else—it is not intrinsically possessed of the function of awareness. This makes sentience a somewhat difficult conception to form: but turn to the sense-datum, in the internal perception of pain, regard its simplicity as factitious, and think of its hidden parts as merely *being*.

If it seems strange that the real should have this nature, and not be either mental, or material (as we ordinarily conceive the material), or some third familiar thing—why should we suppose that the nature of things is adequately presented by any of our ordinary ideas? Must it not be something central, *mediocre quiddam*, that can give birth to them all?

Awareness, then, or consciousness as it is usually called, is no part of the nature of things; it is an animal function. The nature of things is unaware, anoetic, blind. It is, as Bertrand

Russell says, something midway between mind and matter.

The source of this conclusion, and the essence of my theory, lies in the sharp distinction drawn between *awareness*, the function, and *sentience*, the existent which exercises it. A knife-blade is inserted between these two components of consciousness, hitherto undistinguished.

The theory has now been fully set forth, and I think it will be seen that it fulfils the promise made at the beginning, of showing knowledge to be really knowledge. It confirms the title of external perception to give trustworthy information regarding the externally real, knowledge of the positions of its parts in space and in time. It confirms the title of internal perception to acquaint us with the nature of the real.

If the foregoing reasonings are sound, the knower really knows. With his attention fixed on the thing itself; enjoying a datum which, far from concealing, more or less truly depicts it; a datum itself derived from the real, and therefore capable of depicting it—how could the knower fail really to know?

This view of knowing approximates very closely to that of ordinary life and common sense. I confess, for my part, to a certain satisfaction in finding that vision and touch are so largely true. It makes me feel more at home in the world. It clears the air of sophistries and illusions, and restores me to the honest universe in which I have always lived. The only concession which the theory makes to scepticism and agnosticism is the admission that everyday knowing is not ultra-microscopic and exhaustive—an eminently reasonable one. Instinctive trust is, indeed, granted to be indispensable; but instinctive trust takes on a different look when it is seen to be not only a biological necessity but a natural and indubitable right. To the scrupulous person who would still insinuate a doubt, the theory opposes the clear insight that the alternative to trustful knowing (if sceptics and agnostics would but recognise it) is not to know and not to think.

II

ELUCIDATIONS

UNDER this heading I gather a number of brief papers which may throw further light on the preceding theory of knowledge.

1

Things in Themselves and their Knowableness

Philosophy—so at least many of us believe—is at present retracing its steps. The post-Kantian judgement which denied the existence of things in themselves is in process of being reversed. When critical realists maintain that the datum in perception is distinct from the object, they are re-establishing Kant's distinction between phenomena and things in themselves.

Kant held that things in themselves exist, but, owing to a defect in his epistemology, he thought that their nature was unknowable. This made it possible for his successors to argue that, if things in themselves are unknowable, they cannot be known even to exist: and on this basis to erect their absolute idealism. What exists, they asserted, is not a world of material things outside us, but a universal spirit within us and manifesting itself through us.

To deny thus the reality of external things is to forget that we are animals. Animals are creatures living in an environment to which they must adjust their relations in order to survive; to permit their doing so, Nature has provided them with sense-organs which reveal things outside them. The sense-organs must reveal these truly in certain respects—their position, their shape, their differences of nature—otherwise the animal could not react appropriately. The existence and the knowableness of real external things are thus biological truisms.

The idealist will doubtless reply that he does not forget that

we are animals or deny the reality of external things, but only their externality *to the mind*. Things are external, not to the mind, but to the body, which is another thing: but if we class all things together and think of the entire physical world, it is not extramental but mental. If it were extramental it would be unknowable.

The flaw in this reasoning is its failure to recognise that there is one physical thing, the animal's body, with which his mind is specially connected and with the processes in which his sensations are inseparably bound up: so that, in being external to his body, other things are also external to his mind. They are extramental, not of course in the sense of being beyond the reach of his thoughts or of his perceptions, but in the sense of existing independently of these. The world does not need minds in order to exist. It existed, much as it is now, before there were minds in it.

Some sense of this dawned on philosophers, perhaps through the influence of the doctrine of evolution, towards the close of the last century, and brought the domination of idealism to an end. But German idealism had an accomplice in British empiricism, with its insistence that the real is met with only in experience. If this means that knowledge of the real comes solely through perception, external and internal, it is an epistemological truism. If it means that real things consist of the experiences we have in perceiving them, it is an egregious error. Unfortunately it was in the latter sense that the earliest realists took it. They identified objects with our experiences of them—with data. They even supposed these, paradoxically, to be capable of continuing to exist when they were no longer experienced, no longer data. In short, the new realists, unable to break at once with idealistic habits of thought, still retained as valid the post-Kantian denial of the existence of things in themselves. Their real things were the post-Kantians' ideas re-named, and supposed capable of existing when nobody has them.

Against this hybrid impossible view, critical realism arose as a protest. Datum and real thing, it held, are distinct.

Their distinctness is a consequence of the manner in which

cognition comes about. An animal cannot go out of its body and behold external things immediately, but can know their presence and nature only by using the sense-impressions which are their effects to form an image of them. The image is later than the thing, because it is formed on the arrival of light-rays or sound-waves; it is in some respects different from the thing, because the materials for forming it are bodily or subjective. It may nevertheless resemble the thing sufficiently to give knowledge of it; and *must* do so, if cognition is to serve its purpose of guiding action.

Things in themselves, then, far from being unknowable, are the very things we know.

2

Simple Cognition and Thought

There can be no question that thought enters as an element into most human perceiving; and may even so alter what is seen or heard as to make of it quite a different apparent object. I remember once walking in the Adirondack forest and hearing what I took to be the sound of a boat being drawn up on a distant dock: the next moment I became aware that the sound was caused by a long coat brushing against my ankles. Thought connects what is seen or heard with its spatial and temporal context, or interprets it by means of universals. In this way the area of the real to which we adjust ourselves is immensely widened and the wisdom with which we do so increased.

It is none the less true that, to have the materials with which to connect or interpret, we must first see and hear. That is to say, there is a function of simple or uninterpretative cognition which is antecedent to thought. In the lower animals this function presumably exists alone, as when the cat sees a mouse or the chick a grain of corn. It is this function of simple cognition which my theory seeks to explain.

Post-Kantian idealism suppressed it. There were no extra-mental objects to be cognised, consequently there were no elementary acts of cognition: there were only "sensations". Knowing was thinking about sensations, arranging them in an order

—not finding an order *in* them, but giving it *to* them—and out of them constructing a world. In reality, the relations needed for constructing a world are discovered in sensible data, not imposed on them. But, for this form of idealism, the only knowing is a thinking of connexions. This post-Kantian conception of knowledge still persists in the minds of many realists, and prevents their recognising that there is a function of simple cognition which is prior to all thought *about* things, and which indeed is the source from which thought derives its materials. In post-Kantian idealism, we may say, the bottom has fallen out of knowledge.

Just because simple cognition is the lowest form of knowledge, and must be understood as a condition of understanding what is higher, it seemed to me that no time and pains should be spared to analyse it correctly.

3

On the Subject-Object Relation

It is sometimes supposed that the physical basis of this relation is simply the causal action by which an external thing affects the self and calls forth a sensory impression—that this action is, when considered in the opposite direction, a knowing.

The criticism I have to offer on this account of the subject-object relation is that it is physiologically defective; that it overlooks an indispensable factor, or fails to perceive this factor's significance. Vision and touch involve not *one* causal relation, but *two*, which I shall call afferent and efferent; and the efferent causal relation is that in particular which makes a state of the subject refer to an object. Laying all the weight on the afferent causal relation makes the subject-object relation essentially *physical* or quasi-physical, whereas it is essentially *biological*. Finally, vision and touch exist primarily for the sake of action; unless the subject's reaction in attending to the object is considered, the cognitive situation is mutilated; and only by considering it can the subject's hold on the object be explained.

The subject-object relation (in its cognitive aspect—for it has

also an emotional and volitional aspect) has been aptly described as one of "presence in absence". The past, in memory, is obviously absent *qua* past, but present *qua* remembered. In like manner, the star is absent as respects its true time and real bigness, but present *qua* seen; and the same must hold in lesser degree for nearer objects. The problem is to explain by what means an object, in spite of its absence, is made present to the mind. I maintain that an important part of the means is the reaction of attending. And my argument for this view will be an evolutionary one.

What was the primal necessity that led to the existence on earth of such a thing as cognition? It was the need of animals to take food and escape from enemies, in order to survive. Food and enemies were existents external to them. The only indication by which the presence of these existents outside an animal could be brought home to him was the change they produce in his body, by acting on it directly in the case of touch and through the intermediary of sound-waves and light-rays in the cases of hearing and sight; and the sensation accompanying the bodily change was strictly limited in its nature and duration by the nature and duration of the physical impression. To seize the food or escape from the enemy, the animal must react. He must react in a way appropriate, not to the impression as such, but to the external existent that caused it.

Consider how strange a thing it is that a sensory impression should call forth a reaction, not to itself, but to something other than itself and external to the animal's body. It must have taken ages to evolve organisms that could do this—organisms with powers of response to the external.

Such an evolution was made possible by the fact that the impression varies with its external cause, and therefore affords an indication of the nature and position of this cause—be it a morsel of food, or an enemy. In the one case the animal must seize, in the other he must run or fight; and he must be equipped with organs (or the rudimentary equivalents of organs) permitting him to do these two opposite things. But a preliminary to either (at least in advanced organisms) is that he should attend: which he does by contracting the muscles of his sense-

organ and directing it toward a certain spot. This puts him in relation to the external thing, and is a first beginning of his *having to do* with it.

Now having to do with an external thing, or referring to it indicatively, is the first of the two essentials of the cognitive relation. Note that the referring is not purely physical, a mere reaction of the subject's body, but is also felt, since muscular and other sensations give him feelings of the direction in which his sense-organ is turned. He turns it instinctively, and with trust that there is a real thing at that point. Thus cognition, in so far as it is the mere indication of an external existent by having feelingly to do with it, can be fully accounted for without attributing to sensations any intrinsic power of looking beyond themselves, or supposing them to know in any other way than by standing in certain external relations.

But this indicative function has only apprised the animal *that* there is an external thing and *where* it is, without telling him *what* it is. His information concerning its nature must come to him from the nature of the sensory impression, which, simply as a force, has moved him to attend. Since his attention is not addressed to the sensory impression itself, but is wholly engrossed with the external existent that caused it, what appears to him and becomes sensibly present will not be the subjective characters of this sensory impression, but the objective characters which it permits him to suppose in its external cause—what he hears will not be a ringing in his ears but the roar of the wind, what he sees will not be a subjective luminosity but an objective light. Only the supposed characters of the real thing will be sensibly present to him; but since these are in fact, and can only be, drawn from the characters of the sensory impression—conjoined, it is most important to add, with the muscular sensations by which he feels his particular act of attending—the *sensibly given characters will be distinct in their being from the real characters*, and dependent for their truth on the degree to which the sensory impression, when interpreted by the felt muscular act, is able to report the real characters correctly.

Thus the conditions of the origin of sense-perception—the

problem Nature had to solve, and the means at her disposal for solving it—were such as to entail a duplicity or “bifurcation” of the sense-datum and the real thing.

Since the subject’s attention is wholly addressed to the real thing, and the supposed characters never come to him otherwise than as reports, his instinctive trust in the existence of this thing will extend also to the description they gave of it; and he will imagine himself to be directly beholding its nature—as in effect he is, to the extent which his apparatus of sensory reception and attentive response permits.

If we note that the space of sense-data is derived with little change from the space of sensations, and that the space of sensations is (on the view here presented) a portion of real space, we shall see that his trust is in the main justified. The reports must contain a large element of truth, otherwise he would not be able to distinguish food from an enemy. Their origin by afferent imprinting and efferent imputing ensures such an element, and provides an effective reply to agnosticism. This element of truth is the sufficient foundation of science—the truth in vision warrants astronomy.

Thus the second essential of the cognitive relation—awareness of *what* the object is—is explained, equally with awareness of its *that*, without the attribution to the animal of anything but subjective sensations in external relations, blind feelings made seeing, hearing, and touching by the function they subserve. In both cases, reaction to the object is that which indicates its existence and turns the sensations into reports of its nature. Of course the reaction or efferent causal relation could not do this, if the afferent causal action of the object on the animal’s body had not evoked it and supplied it with the means.

Cognition, it will be clear from the foregoing, is a device of Nature for enabling animals to adjust themselves to their environment and so survive. It may be doubted whether any but animals—or, possibly, animals and plants—are able thus to take note of their surroundings and behave in a self-preservative manner. The subject-object relation is essentially biological. An atom, when assailed by one of Lord Rutherford’s alpha particles, does not note the danger and seek to prolong its

existence—I speak under correction—but succumbs as helplessly as a spy before a firing party. Clearness of thought demands that the distinction between the organic and the inorganic, between the subject-object relation and physical causation, should not be broken down.

4

Intuition and Intent

These terms designate well the two ingredients into which the cognitive function may be decomposed: namely, the relation of the subject or self to the datum, and his relation to the object or real thing.

(1) The term *intent* has perhaps a little the suggestion of an unanalysable power or act of the mind directed upon the thing, a magical pointing, but that is not how it should be conceived. There is indeed a pointing, but it is partly physical, partly physiological, partly psychological. The physical part consists in the spatial and temporal relations by which the body of the percipient is directed upon the thing which he looks at, listens to, or touches; and in this respect is much like the sign-post whose pointing finger directs the traveller toward a town. There would be no intending, however, if it were not for the percipient's instinctive tendency to react—a tendency incarnated in the passage from sensory impression to motor response. And there would be no feeling of intending, no conscious reference to the real, if sensations from the muscles did not report to the percipient his act of attention to it.

It is requisite to knowing (and particularly requisite when datum and object are seen to be distinct) that the self should *refer* unambiguously to the real thing, selecting it from among the many real things in the world as that with which in this instance he has to do. This is accomplished, and sufficiently accomplished, in vision by the self looking in the direction of the real thing and adjusting his optic muscles so as to see it clearly. Since the self feels this adjustment by means of the muscular sensations reporting it, he does not merely point physically at the object, but also points mentally. Thus intent,

for all its purposiveness, is a mental function quite capable of being analysed.

(2) *Intuition*, though it seems ultimate, is not less so. It is the relation between visual, auditory, or tactile feelings in the self and the datum formed by externalising them. The two are one in substance (if the datum can be said to have a substance), but wholly distinct in category—the feelings being internal, subjective, and real, while the datum is external, objective, and merely apparent. Yet, since data are made of feelings, it is no wonder if philosophers have difficulty in distinguishing them.

When we look suddenly at a certain point, there is a brief moment during which we see nothing clear, and then the visual datum presents itself. This shows that intent begins before intuition, though it continues during intuition—for we can have the datum only so long as we continue looking. It also shows that a process must take place in the self before the datum can arise. This process is receipt of the visual feelings, motor response to them, receipt of the muscular feelings reporting the response, and the union of these three to form a datum.

(3) The distinction of intuition and intent is a legitimate and necessary one. But it is of the utmost importance not to consider them as separate *acts* of the mind, either of which can occur without the other. They are only abstractions from the one act of cognising. *Intuition never occurs without intent*: for the response of looking is necessary to the visual datum arising.

It follows from their conjunction that the visual datum does not come as an *object* viewed on its own account, but comes as a *picture* of the real thing present outside the self. If philosophers could have realised this—realised that sense-data are like ideas, which must needs have objects distinct from them but presented by them—they would have been spared much futile and sophistical philosophising. It is a picture which is taken as identical with the real thing, as a photograph is taken as identical with a person: but which is not the real thing, because it is the knowledge of it.

A useful alternative to the term intuition is *depiction*, which emphasises the function of the datum as giving knowledge, and

makes it more difficult to turn it into a screen cutting us off from the real thing and excluding knowledge of it. An alternative to the term *intent* would be *indication*: we may speak of *intent* and *intuition*, or of *indication* and *depiction*.

5

Knowledge of the Self

It is the contention of my theory, and a premiss essential to it, that the self is a part of the real world, that it is known as self in *internal perception*, and that internal perception is analogous to external in involving a duality of object and datum. The two forms of cognition differ in the two respects, first, that objects of internal perception are *private*, or accessible to one person only, and secondly, that they are of a new kind, being *feelings*, not material things. Realism is important here, because internal perception, if it is knowledge of the real, may throw light on its nature.

This benefit is lost if we look for the self within the circle of the given, as I think some philosophers do. They suppose that which sees or hears to be contained within the seen or heard, either as the total momentary datum, or as its peculiar sort of being, or as its unity. When we reflect that the datum is objective in its category, and that its unity is only the fact that so much is given and no more, a certain wholeness, it becomes evident that neither the being of the datum nor its unity can be the subject *to* which the datum is given. And do we not feel that this subject is the whole organism or self?

This self is real, for to external perception it appears as the body, an object among objects. Our internal knowledge of it is a consequence of the fact that each organism must needs look after itself, and requires information about hunger no less than information about food, information about pain no less than about enemies, in order to do so. Pain and hunger are thus real states of the self—not mere “feelings” whose feltness exhausts their being. There are also visual, auditory, and tactile states of the self, which the self uses to see, hear, and touch, and in using them has data given to it.

6

An Omitted Factor in the Production of Data

Readers of my early attempts to explain their production may have had difficulty in understanding how visual feelings can give rise to visual sense-data. I made their task more difficult by the omission of a factor, the importance of which I did not myself at first see. I spoke as though the genesis were effected solely by the feelings causing a motor reaction, that of directing the eyes towards the object and adjusting the optic muscles so as to see it clearly; and overlooked or failed to emphasise the muscular feelings which report this reaction, and are present in us simultaneously with the visual feelings. When it is realised that muscular feelings of looking and accommodating the eyes always accompany the visual feelings, and "fuse" with them—that is, join with them to produce the visual sense-datum—I think the rise of a datum such as we actually experience becomes quite intelligible.

To feel oneself reacting, automatically and uniformly, as if a visual feeling were at a certain external point, is to see it at that point.

7

Is the Datum an "Essence"?

In the essay, "On the Nature of the Datum", which I contributed to the co-operative volume, *Essays in Critical Realism*, I maintained that the datum is an essence or bare nature, and spoke of it as "a universal of the lowest grade". I have since seen reason to abandon this view, and I wish now to state my grounds for the change, and to explain what it was in the nature of the datum that made me imagine it a universal.

I adopted this opinion because I saw that the datum is *not a real existent*. Those who think of consciousness as merely an assemblage of data, without a subject distinct from them to which they are given, are, it is true, in the habit of calling data existents; and of course data do exist, in the sense in which any constituent of the universe, whether real or only apparent, may

be said to "exist" if experience actually finds it. But there is the greatest difference between things found that would have existed just as much if they had not been found, and things that owe their existence solely to the finding of them. The former are real, active, continuous in their being, while the latter are discontinuous, inefficacious, merely apparent. I prefer to reserve the term exist for things that are real and efficacious, and that exist just as much when not given as when given.

It was the shadowy, evanescent, unreal nature of the datum that disposed me to think of it as an essence. Data, though generated naturally, were plainly of a nature different from and in some sense antithetical to that of real things. For the natural world is a closed system, and, in depicting real things, they duplicate parts of it. The definition of these duplicates as essences seemed to give them the needed kind of shadowy being.

An essence is a bare nature; and a bare nature is something that may be possessed in common by many existents, and, in all, is "the same". Hence it is a universal. A certain poem of Shelley, a certain symphony of Mozart, is the same poem or symphony, however often one reads or hears it. Similarly, two flowers of exactly the same shape and colour have a nature which is the same universal.

I was influenced also by certain arguments. The view that the sense-datum is a universal offers an advantage in the theory of cognition, in that the character intuited and the character embodied in the object can be asserted to be identical, and this identity can be appealed to as explaining how the real character is known. Such an account of knowing makes the depiction of things by data almost equivalent to intuition of them. It takes for granted that what is given is only the *nature* of the real thing, and that cognition consists in attributing the given nature to the ungiven existent.

The advantage offered turns out, however, to be more or less illusory. In the first place, even if the datum is a universal, the universal given and that embodied are usually *not* the same universal. In the case of colour, what is embodied is a texture of fine parts; in the case of distant objects, their apparent smallness is different from their real largeness, and only the shape is

common to the two. The common universal would thus be, at best, a very abstract one. But this abstract universal is *not* what is sensibly given. Thus the advantage offered slips away when closely examined.

Secondly, even in cases where the nature given and the nature embodied are identical, they are identical only *logically*, and the givenness of the former affords no certainty that the latter is identical with it *in fact*. In fact, the real nature is no more given than the real existence—both are only presented through substitutes.

And this raises the question which I have unintentionally answered in my last words, whether it is not true that there is a presentment of the thing's existence as well as of its nature. I am inclined to think that there is—that, as the nature of the thing is made present by the characters of the datum, so the existence of the thing is made present by the datum's being. The result (if this suspicion is correct, which I do not guarantee) would be to disallow the view that cognition is the attribution of a given nature to an ungiven existent, and to substitute for it the view that cognition is the assertion of a phenomenon exhibiting both existence and nature to be externally real, to show the object as it is.

The view that cognition is attribution separates intuition from intent as if they were different mental acts (not ingredients of a single act), and conceives the former as holding up a universal (not a particular) which then is attributed to the object. It may be doubted whether this is the way in which universals gain entrance to the mind. Do we not have, first, to contemplate particular natures—the nature of this flower, of this apple—and do not universals only follow after, either by abstraction from many coloured and shaped things or as an automatic result of our having seen many? Surely universals are data of thought, not of sense. Sense—that is, cognition—has the sole purpose of enabling animals to deal with particular things, particular situations, and does not show classes. Cats do not need universals in order to see mice.

I come to the conclusion, therefore, that the datum is not an essence in the sense of a universal. This view, if I am not mis-

taken, is an inheritance from idealism. It was the limitation of knowing to classing by means of concepts, to interpretation by ideas, that first gave rise to it. The abstract was prior to, and also superior to, the concrete—perhaps because God had to think of things before he created them. Legitimate as it doubtless is to draw up a dictionary of possible natures, let us not suppose that the words in it had to be printed before they could be spoken.

8

Relation of the Datum to Time and Space

An argument used to prove that the datum is an essence is that, since the time and space which it holds up to view are not real, it is “out of time and space”, as universals are. What can be said in reply to this argument?

It cannot be denied that the time and space which the datum shows are not real time and space. The intuited duration, the intuited length, breadth, and depth, are not real, for two reasons. First, real time and space consist of innumerable minute parts, which in the datum are not shown. Secondly, the space shown—a “perspective”—is distorted, shrinking more and more with distance; while the time shown is the fused time, exhibiting immediately successive things simultaneously, of the “specious present”. Both the durations and the extensions shown are specious, and so not parts of real space and real time.

To infer from this, however, that the datum is out of relation to real space and time, that it does not occur at a definite moment and in a definite place, would be going too far. For it appears and has being only during the time when it is intuited. Shutting the eyes deprives a visual sense-datum of being, opening them again restores its being. Further, a visual sense-datum has a certain place as its point of view, and shows its shrunk objects as at different distances from that place. The perspective stretches like a diminishing cobweb from the beholding self to the things beheld. Entities so definitely related to real places and times can hardly be said to be “out of space and time”.

Though their internal space and time are not real, data are

in real space and time externally through two relations. First, they depend for their being on intuition, and intuition is a function occurring at a certain moment and looking out from a certain place. Secondly, a sense-datum depicts a real thing as it is at that moment and as it appears from that point of view. Thus data are tied to definite places and times, even if they are not literally in them. They may be said to be *between* real places and *between* real times. Entities so definitely located can hardly be universals.

An experience most difficult to reconcile with the view that the datum is a universal is the sight of a motion—say, that of a tram-car. The continuous change in the datum is so obviously something occurring *now*, that the idea of the datum being out of time, and a universal, appears almost absurd.

9

Logic, or Psychology?

Those who regard the sense-datum as an essence or universal hold it to be an entity of a purely logical sort, to conceive which as generated or as falling within the province of psychology is gravely to misunderstand it.

To this it might be replied that it is at least one of the tasks of psychology to explain how we are able to think of universals. More to the point is the fact that psychologists do actually concern themselves with sense-data and succeed in explaining their characters—as when the vision of depth and of solidity is shown to be dependent on binocular disparity and on ocular adjustment. The various colour theories are quite obviously psychological. Is it possible that data fall to be discussed, in different aspects of their being, by *both* logic and psychology?

I will now mention a series of facts which make it clear, in any case, that sense-data must be considered by psychology.

The sense-datum given to vision at any moment is a field, containing many characters of objects. It is only the parts of the field, the individual coloured shapes and their relations, that are judged to be externally real and so fall to be considered by logic—not the field as a whole, with its vague boundaries and

its unity. These boundaries and this unity do not exist in the outer world, and are characters of the sense-datum dealt with only by psychology. Again, when we turn our eyes so as to transfer a marginal object to the fovea, the shifting of the field which occurs is not a change dealt with by logic but by psychology. Further, the coloured shapes may at different moments be seen with different degrees of attentive clearness: the characters, with which alone logic is concerned, remain the same, and the differences of clearness are differences considered solely by psychology.

Perhaps it will be argued that boundaries, unity, shifting, clearness are determinations of the intuiting—not of the data intuited—and only for that reason fall to be considered by psychology. I do not believe that this is so. For the intuiting, indispensable as it is to the being of data, is not itself an actual or possible datum; while those determinations (if by unity we mean wholeness) are observable peculiarities of the datum.

It cannot well be denied that psychologists are within their rights in concerning themselves with sense-data. What may rather be questioned, I venture to suggest, is whether logicians are really concerned with them. They are concerned, it seems to me, with real things, though with these in the form in which data present them.

All reasonings are about *intended* objects, though they necessarily take them to be as depicted (as depicted either by sense or by thought). A universal is not a mere intuited essence, but an object of intent—an object of a higher level of intent, since a more complex intent is required to think of a class of things than to think of one thing. In short, to solve our problem we must distinguish between the datum as an entity having being and the datum as asserted. Logic has to do with the latter, while the former is part of the subject-matter of psychology.

10

Sense-data as dealt with by Psychology

Sense-data are proper subjects of psychological investigation, partly because of their peculiar sort of being, and partly be-

cause they owe this being to intuition. Their *esse* (that is, their occurring) is *percipi* (in the sense of being intuited). A sense-datum is thus like a ghost, whose being depends entirely on the fact that some one sees it. Such an entity may fitly be called a *phantasm* or *apparent*.

A phantasm has three characteristics: (1) it does not exist in the natural world; (2) it is not causally efficacious; (3) it owes its seeming existence to the self.

Phantasms may be produced in various ways. One way is by misinterpretation. When a superstitious person crossing a churchyard at night thinks he has seen a ghost, it was some carved monument or some whitish spot to which in his fear-ridden state he gave that interpretation. The commoner way is by motor response. When we look through blue glasses, the blueish objects which we see at a distance from the glass are, *qua* blueish, phantasmal; but it is now the adjustment of the eyes for a certain distance that transfers the colour to them and causes the illusion of their being blue. The well-known geometrical illusions, as where a line looks longer or an angle sharper than it really is, are similarly produced; when we awake to the illusion, it may be impossible to recover the phantasmal datum. Phantasmal also are evidently the two different ways in which the staircase figure may be seen—either as a flight of steps looked down upon from above or as one looked up at from underneath; these data have no existence on the paper, and are produced by our reacting either as if the upper end were far and the lower end near, or *vice versa*—in other words, by motor adjustment. But unless we felt this adjustment by means of muscular sensations, one of the two kinds of materials required for forming the sense-datum would not exist in the self.

In looking at a painting representing a landscape we may see either the scene depicted, or the dabs of paint on the canvas. If we see the former, the datum of our perception is as truly a phantasm as that of the person who saw the ghost: for it does not exist in the natural world, it is not causally efficacious, and it owes its temporary being wholly to our vision of it. When the painting hangs on the wall and no one is looking at it, there is no

scene, but only the canvas with the dabs of paint. As in vision through blue glasses, the phantasmal scene has been produced by a conferring of depth; and the depth was conferred by our adjusting the optic and other muscles as if the stimuli came from objects at a distance. What are called cycloramas utilise painted walls for the further distances; the more accurately the sensory impressions received imitate those due to light-rays in ordinary vision, the more complete is the illusion of seeing an actual scene.

It is therefore no doubtful hypothesis, but only an inevitable inference from the facts, that even in ordinary vision the element of distance is introduced in the same motor and muscular way, and that the visual sense-datum is of the nature of a phantasm.

11

Intuition involves Intent

A fallacy lies in wait for us when we recognise the distinctness of datum and object. There is a tendency for the two to fall apart, and for the datum to become an immediate object, from which the real thing is inferred: with the disastrous consequence that the inference is seen to be invalid. All hold on the externally real has thus been lost, and only data, as in German idealism and British empiricism, remain.

This failure of analysis and denial of knowledge results from turning the attention away from the real thing and upon the bare datum, so that the datum is prevented from playing its natural part in knowledge. It misconceives what a datum is. The datum is *not* a mere object of contemplation, enjoyed for its own sake: it is a means of knowing the thing—it is transitive, and that essentially. Intuition occurs at all only because there is a real thing aimed at by intent, which it is the business of intuition to present. The intuited datum is “transcendental”, in the literal sense of this word, the sense of being a means of transcending.

It is transcendental because, as a condition of its appearing at all, it had to be preceded by intent, which transcended the self and selected a real thing, as that which the self was to cognise.

Intuition of the datum then followed, as the cognition or sensible presentment of it. This is the only right way of conceiving the datum, and any other view of it misrepresents it and defeats the ends of knowledge.

Since the sense-datum is an entity brought into being for the express purpose of depicting and revealing an external thing, our view is confirmed that it is not a universal but a particular. The datum lies before us only because we are looking in the direction of the thing and allowing influences from it to affect our senses; the least alteration or cessation of the directed glance has as its consequence an alteration or cessation of the particular sense-datum. Intuition cannot, therefore, be divorced from intent, or conceived as exhibiting any characters but the particular ones believed to reside in the object.

12

Is Perception Representative?

In one sense, yes, obviously: the datum is a picture of the object. It is a picture not absolutely simultaneous with it, one that becomes more and more of a miniature with distance, and that in its qualities shows the wood but not the trees. A blurred and inaccurate picture, yet sufficient for the needs of practice.

We intuit only the picture, and the real thing is distinct from it. It is distinct, because its existence is separate from our existence, and because we can know it only by using our own states. But this is picturing.

Perception is *not* representative, if you mean by this that the real thing is inferred from the picture. Such an inference would not be valid, because we have never known real things otherwise than through pictures, and must therefore have known them *without* inference, or, so to say, directly. Our knowledge was direct because it involved intent.

Intent is *instinctive*. The new-born babe never touches the breast without using its fingers, it never gets visual impressions without beginning to use its eye-muscles and looking towards the thing from which the impressions come. But the light-rays

bring only a report of the object, they do not bring the thing itself; the thing as an existent remains separate from the babe's existence, however intently he looks. The existence of things, accordingly, can only be indicated by an external relation—it cannot be drawn into the being of the percipient, or got at in any other way. It is made present to the self by his instinctive and felt behaviour.

The notion of intent was what Hume lacked. He might have stated his philosophical result without scepticism had he said: "Of course I believe in the existence of real things as much as any one, but I have shown (1) that you cannot intuit anything but images, (2) that you cannot pass by reasoning from these to real existents distinct from them; wherefore you can only arrive at them in practice and with instinctive trust, as I do when I eat and drink or when I look at a table with the confidence that it is really there."

When intent is thus recognised as accompanying intuition, the fault which has vitiated most theories of perception is cured, and the datum gets its proper value as a picture *of the object*. Despite the duality of object and datum, and the fact that only the datum is intuited, perception presents the real thing and it alone, because the datum is now the real thing as the percipient sees it. He identifies the datum which he intuits and the object which he intends, although they are not identical.

This is more or less what we do in viewing a man's portrait. *The naïve percipient takes the picture for the thing itself: takes its characters for the thing's characters, and its being for the thing's existence.* They are not identical, but he identifies them—not consciously, as if he had the two things before his mind, but instinctively. *It is in this instinctive identification that the perceiving and really knowing consists.*

Suppose a child who had had no experience of cinemas were taken to one for the first time; and that behind the screen there were persons exactly like the persons shown on the screen and doing exactly the same things. The child might imagine he saw the real performance. But he *would* be seeing it! If one performer should stab another, drawing blood, and the child ran and told the police, his story would not be untrue. This apologue

represents, I take it, the exact situation in perception: the portraying, the supposed identity, and the truth of the portrait.

To conclude—the situation in perception is much more complex than earlier thinkers imagined it. Justice cannot be done to it unless, first, we distinguish the self with its states, the intuited datum, and the object of intent, assigning to each its kind of being as an existent or as an apparent, and, secondly, view them as parts of a whole in which each has its special function. Only then shall we see clearly that perception really gives knowledge—direct knowledge of the externally real, and of that alone.

13

The Being of Data

Data have a peculiar sort of being; all data have this sort of being in common. Let us call it *obviousness*. The only fault of this word is that it might be taken to mean evidentness to the self (a relation not given), whereas what I mean is the being of that which is evident (something given). I said that the *esse* of data is *percipi*, but it would be more exactly correct to say that it depends on *percipi*, and is obviousness.

The characters of data are explained by the action of real things on the self; but how shall we explain the obviousness of data? It must be the self that contributes this. Now internal perception informs us that the self (or at least the most active part of it) consists of feelings; and we have seen that these are not simply apparents, but are real states. It is natural, therefore, to reason that obviousness is produced by feelings being used—used to signify real things external to the self—that is, by our reacting as if a feeling which bears the impress of an external thing *were* the thing. Obviousness, in short, is the nature of the self projected. We have only to behave, regularly and automatically, as if a visual or auditory or tactile feeling were outside us to make it appear to be there—that is, to make a phantasmal datum *appear*.

Thus apparent external things shine, like the moon, by a light which is not their own.

14

On Refuting Agnosticism

A theory of knowledge should establish the claim of knowledge to be such—should show that knowledge penetrates to the real and reveals it with some degree of truth. Our careful study of the nature and function of the datum was undertaken for this purpose.

(1) The proof was made possible by our correcting the misconception of the datum as an immediate object, and substituting for it the view that the datum is transcendent in its function, that it is the vision presented to a person who looks at and has his attention fixed on the real thing. Though in its being the datum is only the obviousness of certain characters, in its external relations (without which it would not occur at all) it is the presentment of the real thing—it is functionally transcendent. It overleaps the gap between the self and the externally real.

(2) Through this functional transcendence the real thing is known—and nothing else but the real thing is known, it is the only object of knowledge. This is the case both in external and in internal perception. I do not mean to say that knowledge of the real thing is in all respects true, but only that it is presumptive knowledge. To justify itself fully it must stand the test of scientific investigation.

Even secondary qualities cannot be said to *mispresent* the real. For they vary with their external causes, and so permit adaptation to these; through them we perhaps perceive the causes confusedly, rather than incorrectly. I am less inclined than I once was to call them a case of “normal error”.

The test of sensible knowledge is science, which, using instruments and reasoning from observations made with them, corrects what is confused in ordinary perception and reveals the trees of which a wood is composed. The scientifically discovered trees are just as real as the wood (or if anything more so, for the wood is partly confusion). Science, though it is but abstract, tells us the truth about things: but its aim to do so

rests on the power of ordinary perception to transcend the self, reach the real, and reveal it.

(3) External perception reveals the characters of real things, but not their nature. It reveals only characters—in particular, the spatial and temporal ones—because it exists for the sake of action, and for this knowledge of the characters is sufficient. To learn the nature of things we must look to a different source, internal perception.

This form of knowing reveals a nature unknown to external perception, namely, *feeling*. It reveals it, to be sure, only in the apparent form of the internal datum, but in the self this nature is real. The part of the self with which it sees, hears, or touches consists of feeling, and feeling (with force) is the nature of the self as an existent.

We have explained obviousness by the use of feeling to make data *appear*.

(4) If this theory of consciousness is correct, feeling is the nature at least of one small part of the real world. This part, it is true, is a highly exceptional one, met with, so far as we know, only on the surface of the earth. The nervous process (which we have seen to be a true though external presentment of it) shows it to be an extremely complicated arrangement of minute parts—an organic arrangement, and therefore exceedingly different from the real events happening, say, on the surface of the sun.

Notwithstanding this enormous difference, all natural events are, according to physics, fundamentally of the same kind. Now human consciousness came originally out of Nature, and is still maintained in its being by warmth from the sun. Solar particles, therefore, have only to be rearranged in the form of an animal body, for feeling to appear. The real is in any case of such a nature as to be capable of producing feeling; and how can it do so, if its ultimate parts are not sensible, sentient, in their nature?

The problem becomes that of so modifying our ordinary conception of feeling as to make it represent correctly the nature of these ultimate parts. The non-existence of adequate terms for concepts so remote from everyday life adds greatly to the difficulty of the case. I use the word feeling here with reluctance,

because it is certain to be disliked and almost certain to be misunderstood. If, occasionally, I allow myself to speak of *minimal feelings*, may I ask the reader to remember how different they are from toothaches and touches?

Spinoza expressed the idea well when he said, *Omnia quamvis diversis gradibus animata sunt*—because animation means both inner sensibility and lively activity. Schopenhauer emphasised the latter when he called the nature of all things *Will*. Bergson avoids the terminological difficulty by combining the two in his *élan vital*; Bertrand Russell by his dictum that the real is “something midway between mind and matter”. All these expressions of the inexpressible I accept, as more or less happy statements of the required conception.

But among them I choose for my own use Spinoza’s word, and elect to say that the nature of things is *animation*. I then divide its actuality from its potentiality, and call the former *blind sentience* and the latter *persistent force*. Feeling that is unaware, and force that is eternal, are thus the two constituents forming what we perceive as matter. Neither can be omitted without injustice to substance. Abstract though this conception is—for minimal feelings are quite unimaginable—it yet points clearly the direction in which the nature of things is to be sought.

(5) The nature of things, then, is *not* unknowable. There is no corner, part, or aspect of the world which is not, essentially even though not actually, accessible to knowledge.

Agnosticism is a pernicious doctrine. If the nature of things is unknowable, there is no knowing what it may really be. It may be a universal mind, either a good one or an evil; or it may be something so different from anything with which we are acquainted that we can form no conception of it. When knowledge abdicates, imagination usurps its place; and with imagination comes illusion. The door is opened to all sorts of arbitrary fancies, which now have equal authority with science.

Such is the result of doubting whether we can really know. Knowledge, I believe, penetrates to the heart of things, revealing their large-scale relations to ordinary perception, their small-scale relations to physical science, and to psychology

even their nature. Mankind needs to know the truth about the difficult world in which it is called on to live. It needs perception, science, and, not least, common sense.

15

Internal Perception is like External

I conceive the nervous mechanism of internal perception as follows. Let pain be the object perceived.

(1) The prick of a pin, injury to a limb, or decay in a tooth calls forth a process in some part of the brain, which (nervous processes being the form in which states of the self appear) is the bare feeling of pain.—This corresponds to the sense-impression in external perception. (2) This cerebral state, being sharp and aggressive, evokes a bodily movement of recoil from itself and its peripheral cause, as intolerable.—This corresponds to the motor response in external perception. (3) Incoming currents from the muscles and other parts report this recoil to the brain, causing the feeling of the pain's intolerableness; and this feeling fuses with the bare feeling of pain, giving an edge to it, to form the total experience of being in pain.—This third factor corresponds to the third factor in external perception. The two forms of perception are thus completely parallel in their nervous mechanism, and alike as modes of cognition.

As a second example, take the sense of well-being. (1) When all the bodily organs are functioning in a normal and healthy way, they evoke a cerebral process which flows smoothly; its smooth flow is the bare feeling of health. (2) The feeling of health causes a muscular reaction of acceptance, of welcome. (3) Currents from the muscles report this response to the brain, and evoke feelings there which are feelings of pleasure or enjoyment; and which, combined with the bare feeling of health, constitute the sense of well-being.

Let us take, as a third example, anger. (1) The sight of an enemy, or hearing an insult, causes a state of cerebral excitement, which is the bare feeling of provocation or aggrievement. (2) The excitement overflows into the muscles and other bodily parts, and causes clenching of the fists, contortion and redness

of the face, quickened breathing and heart-beat, etc. (3) Currents from the muscles bring to the brain the report of these peripheral changes, and the feeling of them which thus arises is the sense of being angry. This sense combines with the bare feeling of provocation or aggrievement to produce the total experience of anger.—Thus the same three factors are present in the internal perception of pain, well-being, and anger which were pointed out in external perception.

Lo! in this account of internal perception and in my theory of consciousness as involving three nervous paths, I have simply (without knowing it) generalised James's theory of emotion.

16

Internal and External Perception are Distinct

Some recent writers have drawn attention to the fact, or supposed fact, that in external perception we are aware that we see with the eye, that we touch with the hand. It has even been suggested that seeing begins at the moment when light-rays reach the eye—so that the eye itself, without the help of the brain, is, at this first moment, that which sees.

This extraordinary suggestion is inconsistent with our theory that, in order for seeing to occur, the visual feeling must call forth a motor response; that, in order for the object to be seen as at a distance, the motor response must be reported in the form of muscular feelings. The motor response cannot occur until currents from the eye have reached the brain; it is a response of the organism as a whole. Only the organism as a whole, or self, is that which sees.

It might still be true that in external perception we are aware of seeing with the eye and touching with the hand. I doubt, however, whether this proposition states the facts with sufficient care. Of course we *know* that seeing involves the eye and touching the hand; but are we aware of this whenever we see or touch? Even if we were, the awareness would be a thought, and 'not a part of external perception. Of course, too, we can *see* the hand when it touches an object, and even see the eye in a mirror at the moment when it sees; but this merely adds a second

external percept to the first. If we are aware that we *use* these sense-organs—which is what seeing and touching “with” them means—it must be by internal perception, which exhibits them as parts of the self.

Now in vision and touch we do get sensations from the eye and the hand, which are possible objects of internal perception; but the visual and tactile ones are externalised into data showing outer objects, and the muscular ones into data showing the distance of these from the body or the qualities disclosed by our efforts to deal with them. In ordinary perception, I think, only things outside us are perceived, and there is no awareness of the self or of the organs by means of which the self perceives them. Awareness of the self is excluded, because it requires a different direction of the attention and a different use of the feelings in forming data.

I conclude, then, that internal perception does *not* normally enter as an ingredient into external perception. The cat sees a mouse without being aware that she uses her eyes. The painter uses his brush with delicate precision, but only the canvas, the colours, and the desired effect are present to his mind.

External perception and internal are more or less continuous, the attention passing without jolt from one to the other, and I do not wish to deny the possibility that attention might on occasion have a large object consisting of the external thing and the feelings by means of which it is seen or touched. When one pushes hard to open a door, or is blinded by excessive light from snow, this seems indeed to be the case. What I feel sure of is that such conjoint experiences are only occasional, and that in ordinary perception only the external object is present to the mind.

External and internal perception are distinct forms of knowing, and not very compatible with each other.

17

On Phenomenalism in Psychology

The neglect of internal perception—the failure to see that the self must be real, that feelings whose being lies in being felt are

only phenomenal, and that the duality of object and datum is true of this form of cognition as much as of external perception—is a most serious obstacle to progress in philosophy. It prevents recognition of the fact that data must needs be given *to* something, or rather some one, distinct from them. It is responsible for their hypostatisation into a “consciousness” that exists in the same sense as the brain does—for psychophysical dualism. It is responsible, by consequence, for the view that matter, the brain included, is unknowable in its nature.

This blindness to the internally real is a relic left behind by post-Kantian idealism, along with the disbelief in real external things; and more easily accepted than the latter, in that external things were more obviously real, and feelings whose being was to be felt seemed sufficient for internal purposes.

Its ultimate source was *phenomenalism*—the preconceived notion that givenness is reality. Now that critical realism has contradicted and (let us hope) displaced this view in external perception, it is time critical realists turned their attention to internal perception and applied the distinction of datum and object to knowledge of the self. Progress in philosophy will, in my opinion, not be made until the phenomenalist fallacy is overcome in both domains, and belief restored in the existence of what earlier generations called *the soul*.

18

On Atomism in Psychology

The soul is complex and divisible—not divisible, however, without losing its functions as a soul. You cannot bisect and quadrisection a printing press and still make its parts work. As a functioning mechanism the soul is single and indiscerptible; the law of its being is co-operation.

It has minute parts of the size of atoms (for it appears as the nervous process); and, if my analysis of space and time is correct, these parts have minuter ultimate parts which are in points at instants.

The instantaneous point-occupants are distinct from one another, but—being arranged in the orders called *space* and

time—they are not discontinuous. Those existing at one instant, by virtue of the potentiality contained in them, give birth to those existing at the next. In doing so, they change their relative places, and so, by their interaction, produce motion.

Instants following each other, with nothing between, are indistinguishable from a continuous flow. Points contiguous to one another, with nothing between, are the same as a continuous extension. The analysis thus preserves continuity. And this continuity extends to the parts of the soul, which is in space and time.

That this atomism of the soul is entirely consistent with the unity of consciousness and the simplicity of data will be evident if you reflect that the datum is an apparent, and phantasmal. I will reply, however, to objections likely to be felt.

First, on the score of the unity of consciousness. Out of a multitude of bits of feeling, it will be said, a datum without parts, or the parts of which are present at once, could never arise. The answer to this objection is that the only unity actually observable in the datum is its wholeness, if it consists of parts, or its simplicity, if it is without parts; that the former is the result of the fact that a continuous group of feelings is all used at once, and the latter of the fact that this group is used only as a whole, so that no parts in the datum are discriminated or discriminable. If the datum is supposed to have any other unity than this, it is because the function of intuiting has been illicitly imported into it.

What commits us to atomism is, of course, the fact that the soul or self appears as the brain, and must therefore consist of as many parts as the brain does. These parts might not be minimal, they might only be very minute (say, of the size of cells or atoms), and the theory that data arise by their externalisation and simplification would remain equally valid. If I hold that the parts really are minimal, it is because I do not see how space can be composed of less than an infinite number of infinitesimal parts, and how time can be composed of anything but instants.

The argument by which I analyse time into instants seems to me an absolutely sound and irresistible piece of reasoning. The only alternative to this view is that time consists of smaller and smaller durations *ad infinitum*: but, if that were the case, there could not be such a thing as the present. There could only be a minimal or infinitesimal duration, which, to endure, must consist of at least *two* presents—presents not real at the same time. I should be grateful to a logician who would point out to me the fallacy in this reasoning.

Perhaps he would say, You are assuming real instants, though no such things are ever met with in experience. You should take the things that *are* met with there—namely, “events”—and construct unreal instants out of them. I reply by asking, What in experience has moved you to this construction? How, without instants, can events ever come to an end? Must there not be an instant when the event still is, and a next instant when it is not?

As to the caution to keep to the data of experience, I say to myself that experience (that is, external and internal perception) was evolved for the sake of action, and for this did not need to show everything that in Nature was real—its minuter parts, or points and instants; yet that these inevitably crept in, as implications or limits of the gross parts shown. Reason, in assuming them, is but following out the unmistakable indications of experience. Everything in physics and in mathematics points to the conclusion that the real is infinitely minute and precise. My guess is that its ultimate elements inhabit points at instants.

19

On Psychoanalysis, and on Configurationism

The conception of anoetic sentience, especially if we remember that sentience is force, makes it easier to understand how there can be an unconscious part of the soul in which there are unfulfilled wishes, inferiority complexes, etc. These, to be sure, are cognitive, as well as active, but their cognitive function is latent and the mischief they do comes from their activity.

Dragging them before consciousness nullifies or corrects this activity.

Atomism in psychology might seem antithetical to current configurationism, but our theory of awareness can prove them to be consistent. The datum is a whole, the parts of which belong together—it is like a word, the letters of which do not separately mean but only in their combination. What combines the elements of a sense-impression and gives meaning to them as a whole is the motor response—of attending, or of welcoming or avoiding.

There is nothing in this fact of configuration inconsistent with our account of the genesis of data. It is simply a question of what, in the complex of feelings forming a sense-impression, has the power to evoke a reaction. A moving object seen marginally has this power: why? Evidently because such objects are biologically important, and the animal has therefore been endowed with the instinct to respond to them. The shape of certain objects, which reveals the fact that they are other animals, clearly predominates in importance over their colour. It is simply a question of the useful reflexes with which animals come into the world.

So far from being inconsistent with configurations, our theory explains them. The mere sensory impression is atomistic, consisting of a multitude of parts: what unifies them (makes of them an organic whole) is the motor response in its singleness and the muscular feeling of it. This last covers the picture like a varnish and holds its parts together.

The facts of configuration make doubly clear the essential rôle which the response plays in determining the character of the datum. We do not see with mechanical uniformity all that affects the retina and brain, but what we see is partly determined by our needs and our interests—that is, by our inherited instincts.

20

Experienced Time and Real Time

Let me explain a little more fully why I think that, though instants are not actually experienced, they are unmistakably

implied in what is experienced; so that it is not true that the ultimate constituents of the real are "events", but these may be analysed into temporal parts which are not events.

(1) The times we experience are for the most part short durations, that is true. If the clock strikes twice, I may remember the first stroke while I hear the second, and experience the two together as a short duration. Such an experienced duration has been compared to a boat floating down the stream of time. It has even been said to contain "a little bit of the past and a little bit of the future". Any future it contains can only be an expected future, and that is not a datum of *experience*: I may expect the clock to strike a third time, and it may not do so. The only data of experience are the present and the past. The experience, in other words, is not all perception, but is partly primary memory.

But let us look more closely at this short duration. Really there are *two* experiences, which become parts of a total experience: I *hear* the first stroke, and then I *remember* it while hearing the second; but they come in such quick succession that I have not time to concentrate on the first before the second supervenes. Is not the experienced present *each* of these strokes at the moment when it is heard?

Unquestionably this experienced present—the "specious" present—is a product of fusion, parts of time too minute to be attended to but really successive being joined into one. The *real* present, on the other hand, as nearly as experience can come at it, is the hitherward limit of the given—and *not* a finite part of it however small, any such part being still a duration and therefore consisting of more than one present. This is the peculiarity of the experience which, if my suspicion is justified, points to instants being real.

(2) The remembered part of the duration is *no longer* real. In our simile of the boat, it is important to recognise that the prow of the boat is nearer to us than the stern, and that all but the prow is imagined, not seen. There is thus in experienced time a temporal perspective, analogous to the spatial perspective in vision, objects and events retreating into the past and becoming more and more distant the longer we look. In other words, the

boat is not at rest but moving. Its motion is such that there is an immediate transformation of the perceived into the remembered—a transformation so immediate that the present is narrowed down into an instant. All the rest of the boat being no longer real, only this instant is real, is the true *now*.

It is the *now* that moves, or becomes a new now with such swiftness that it escapes us. It is like an animal too swift to be seized, and whose passage we can only infer from the scent it leaves behind.

(3) Let us turn from experienced time to time as it exists in Nature. What makes it possible to fuse the past with the present is memory. But Nature does not remember. What happened in the past is, for her, not only bygone and unrecalled, but as if it never had happened. The waves of ocean do not remember their innumerable fluctuations. Only the effects of the past now exist. We may say that Nature is so busy producing the future (which she does not foresee) that she has no time to recollect the past. What happened before human memory, before history and pre-history, is forever blotted out.

Though memory is true as long as it continues, only the present really exists. If we follow out that pointing, what do we come to as the real constitution of the present? A ray of light travels 300,000 kilometres in a second, and traverses each kilometre—nay, each fraction of a kilometre, however small—*after* its predecessor and *before* its successor; and in each, the light-ray exists only where it is and when it is. We come inevitably to Zeno's conclusion, that light-rays and arrows do not literally travel, but only limp, or change their places from instant to instant.

To sum up. In all experience of the real there is a temporal perspective, and an immediate transformation of the perceived into the remembered. This, in external perception, has to be added to the duality of datum and object and to the time-lag: we perceive the real thing at two removes. "Events", since as durations they require the intervention of memory, are not ultimates: they can be analysed into constituents which are not events and yet are in time, namely, instantaneous reals.

21

Identification, or Identity?

An ultimate doubt has sometimes assailed me, which I will put into the mouth of a neo-realist, as it is he that would benefit by it.

"I find your contentions interesting that intuition must not be separated from intent, that the datum does not merely represent but depicts the object, and that the percipient identifies the two. But, having gone so far, must you not go farther, and admit that, for him, they are identical? *Is* there, in that case, any datum distinct from the object at the moment of perception—is not the distinction of datum and object one made only in reflection, and erroneously made? Admit this, and your critical realism turns into neo-realism. How indeed can the knower know the real thing and its real characters unless both are immediately present to his mind?"

To which I should reply as follows. "Undoubtedly, the need for making the object really present to the mind has a tendency to obliterate the datum as in any way distinct from it. I have asked myself more than once whether the shadowy, phantasmal, purely mental nature of the datum did not make identity possible—the percipient mentally seeing the very thing itself. But such a view overlooks at least three facts: the normal error due to time-lag; also that due to distance, the increasing smallness; also the *new* qualities produced by confused perception. These discrepancies between the perceived and the real are due to the mode of production of data, to data having their roots in the body, and they effectually disprove a *complete* identity. If you suggest that, in so far as data are *not* erroneous, there may still be a partial identity, I reply that the identical element is too abstract to serve you—the smallness of data showing distant objects is not made any the less distinct from the real largeness of the objects by the fact that they have shape in common. Data are distinct from objects because they are formed out of bodily or subjective materials, and depend for their being on the self. There *is*, then, a datum distinct from the

object at the moment of perception, although the percipient is not aware of the fact. He identifies them, but they are not identical."

22

On Universals

Universals have played so great a part in past philosophy, they are so necessary to our passing in thought from what has been to what will be, that a naturalistic theory of knowledge cannot wholly neglect them. Are they irreducible ultimates, with a being of their own, as the Platonists among us hold? Or can they, as the nominalists say, be completely analysed into relations of similarity between particulars?

Against nominalism it has been urged that the idea of a class is unanalysable, for two reasons: first, because this idea includes the notion of "all", which is unanalysable; secondly, because it is impossible to explain what is meant by "resemblance in a certain respect" without moving in a circle. These reasons do not convince me, and I venture to reply to them as follows.

(1) The notion of "all" is numerical: it means, *as many as there are*. If a family consists of four members, father, mother, son, and daughter, "all" of the family means these four. "All", here, is the sum of four ones. To me, who am acquainted with the family, it may be known that there are four of them; to my friend, who is unacquainted with them, the exact extension of "all" is indeterminate (within a maximum of twenty or so), but "all" for him still means, as many as there are. If I say that they are all blue-eyed, this means that the father is so, the mother is so, the son is so, the daughter is so: there is no difficulty whatever here in analysing the meaning of "all". Where we do not know how large a class is, "all" means the sum of such members as there are. "All" the members of the Jockey Club will be a variable sum; "all" the planets in the universe an indeterminate sum; "all" the parts of space an infinite sum. If there is nothing wrong in nominalism but the omission to explain the meaning of "all", the defect is easily repaired.

(2) But it is urged, in addition, that nominalism cannot ex-

plain what is meant by "resemblance in a certain respect" without moving in a circle—as we should be doing if we said that triangles resemble one another in being triangles. This criticism cannot be countered by saying that triangles resemble one another in *shape*, or in the *number* of their sides and of their angles; for this is defining a class by the help of the idea of a wider class, and the definition is therefore still circular. Nor can it be met by appealing to the *differences* of shape between triangles and all other figures; for this, too, would be employing the ideas of other classes.

The criticism is, I think, to be met in quite a different way: namely, by distinguishing between the formulation of a given similarity in terms of thought, and the observation of that similarity in perception. We cannot *state* the respect in which triangles resemble each other without employing other universal terms, but we can *see* that two triangles are alike (what is observed being a *particular* similarity); and vision even of a single triangle (since it involves a motor response) may leave behind a habit of reaction such that, when we see a second triangle, we recognise it as being similar to the first.

This last seems to be the way in which ideas of classes are usually formed. Suppose a very young child is shown for the first time a ring, and told that it is *round*, with a movement of the finger emphasising its roundness. The next time the child sees a ring, his attention will be drawn to its shape; and if he sees a plate or the full moon, he may look at it and say, "round". This child has acquired the idea of a class of round things. Nothing has been said about differences or about wider classes. The child's idea of roundness depends wholly on real similarity and on a habit which extends the application of the word to "as many cases as there are".

The absence of circularity will be still clearer if we take a case where the resemblance is not in some one respect, but in all respects (except spatial position and time). A child is shown a new coin, fresh from the mint, and told (having never seen one before) that it is a "shilling". Later he is given a second bright shilling, at a moment when he no longer sees the first. He will say, "shilling". The habit, formed on the first occasion and per-

sisting in his nervous and mental structure, has given him the idea of a class, and whenever he sees a similar coin he will tend to repeat the word and the thought. In this case there is no need to state the respect in which the resemblance holds, because it holds in all respects.

These examples show that, psychologically, generalisation depends on habits of behaviour, which have their physical basis in nervous arrangements for reacting to each set of similar things in a specific way. They make it clear how we can think of a class without imagining each one of its members. We may, indeed, have a vague image of some one member; but the generality of the class depends not on this but on a habit or settled tendency, and is brought before us by a certain kind of intent.

In view of these considerations, it seems to me that the idea of a class is not unanalysable, and that nominalism gives a correct account of it.

(3) The question of the mode of being of universals remains to be considered. Things are similar, some philosophers say, because they have the same nature; and this nature is an entity "out of space and time", with a being peculiar to itself. Its being is *logical* being—identity of the nature as an object of thought—and quite distinct from the *psychological* being of data, from their obviousness. To this the nominalist replies that things are not similar because they have the same nature, but their having the same nature is another way of saying that they are exactly similar. Exact similarity, and not identity, is the foundation on which the validity of universals rests.

In Nature nothing exists but particular things with natures which are also particular, and certain of these natures are more or less exactly similar. The transformation of similarities into samenesses comes about through an abstraction of the nature from the thing that has it, and a generalisation of this nature making it one and identical as an object of thought. Of course, if you thus abstract and generalise, and so get an entity not in any particular space or time, the nature in different instances of it is the same. But natures have no reality apart from the things that have them, and in the things that have them they

are particular natures, as the word "instance" shows. The identity of the universal is therefore an artificial product, useful in economising thought, but without being except for the logician.

The importance of this conclusion will be realised if we recall that logic has to do with *objects* of cognition, not with mere data, and that this must apply to universals as much as to particulars and determine their meaning. A universal—red, for instance—is not the thought of a single identical nature, that be's: it is the thought of many similar natures, that exist or are presumed to exist in things. The unity, the identity, is artificial, and is a means of emphasising the similarity rather than the manyness and so economising thought. The identity of universals, in other words, is only intellectual shorthand. There is consequently no soundness in imagining them to have a sort of being distinct from existence, and supposing that they would be, just as much, if no particular things existed.

In the real world there is similarity between the natures of particular things, but no identity. This can be proved in the following way. Colours are often appealed to as instances of the identity of natures. Now colours, *in rerum natura*, are arrangements of atoms in time and space. Two things having "the same" colour, but occupying different positions in space, have their atoms arranged *similarly*: the arrangements cannot be identical, because different parts of space are not identical. When one sees two yellow flowers side by side, it is clear that the two yellows, however exactly alike, are only similar and not identical.

23

The Inefficacy of Consciousness

The inefficacy, that is to say, of data and of the intuition of data. In my early days we used to prove their inefficacy by citing the law of the conservation of energy, which made of the physical world a closed system; and we felt no regret, because, as we said, there was the brain, which copied exactly every thought and wish in consciousness, and which *was* efficacious. We were parallelists, and looked with a slight sense of disdain

on the interactionists, who could fancy that consciousness and the brain mutually influenced each other.

The interactionists, it is true, had an argument which seemed not wholly without force: that, if consciousness were of no use to the organism, it would never have been evolved.

I remain to this day a parallelist and a denier of the efficacy of consciousness. But I confess that, quite recently, the interactionist argument caused me some searchings of heart. Why indeed should consciousness be there at all, if it is not useful?

I have thought this matter over carefully, and believe that I now understand it. I will try to explain why consciousness is not and does not need to be efficacious.

First, in that early formula—"the brain takes the place of consciousness, acts as its agent"—substitute *the self* for *the brain*, and the situation takes on a different look. It is the self, then, that acts! I confess I had always supposed so. But this is only a first step, and leaves the presence of an impotent consciousness still unexplained.

Secondly, remember the conclusion to which we have come, about intuition being inseparable from intent in cognition. It is not consciousness, then, that has been evolved, but cognition, of which consciousness—the presence of phantasmal data to the self—is only the view from within. What is really happening when we are conscious is that the self is cognising a real thing, for the sake of reacting to it appropriately; and the datum is only the shadow of the real thing falling on or rather becoming visible to the self. This shadow does not have to be efficacious, *because the self, in seeing it, has all the states and does all the acts which are necessary to seeing, and to seeing that particular thing. The external thing does, therefore, influence the conduct of the self, and the self as thus influenced is truly efficacious.* In a word, the interaction—for there really is interaction—is not between consciousness and the brain, but between the self and the other parts of the world.

The intuited datum, inefficacious and intermittent but not without its use, is the inner witness to the self that cognition has reached the object and that this interaction is taking place.

24

The Nature of Attention

My theory of consciousness makes it possible to give a very simple definition of attention. Attention, in its earliest form, is *the operation of sense-impressions in determining motor response: it is feeling producing action*. Let me illustrate this by three examples.

(1) When a moving object seen marginally catches the attention, it does so by the visual feeling producing an eye-movement for looking directly at the object. Throughout this process, only the datum to which the visual feeling gives rise is before the mind. Attention has selected an object and made it alone present to consciousness.

(2) We may experiment on attention by observing what happens when we attend to a marginal object *without* looking at it directly. There is a strong tendency to do this last, which has to be resisted. As before, the marginal object becomes alone present to consciousness and the object directly looked at fades from view. This shows that attention does not consist in looking directly at things, but rather in the feeling producing a tendency to do so—that is, initiating action. When it initiates action it makes present to consciousness.

(3) How often, when an interesting idea strikes us, does the scene before us fade from view! The idea initiates the sort of action which consists in thinking. Or, if it is the idea of something we ought to do, it explodes into outward conduct: thus illustrating the kind of attention we call *will*.

It will be seen that the inefficacy of consciousness, on our theory, does not mean the inefficacy of will, or of the self.

25

Awareness Functional, and Feeling Unaware

These are the two novel conceptions which the theory introduces, and I am particularly anxious that they should be clearly

grasped and seen in their relation to the rest of this naturalistic philosophy.

We deceive ourselves if we suppose that the philosophy of mind now current—the dualism of nervous processes and consciousness—represents final truth. So far from it, the notion of consciousness as an existent and the correlated notion of matter as unknowable are two formidable obstacles blocking the progress of philosophy.

(1) I have endeavoured to show (William James's account of the function of cognition first put me on the track of it) that consciousness is not a magical transcendence, nor a peculiar sort of existent, but is an *external function*, consisting in the use of feelings to depict objects with which the self has to do. This is the first of my two main contentions.

(2) It has the consequence that feelings, considered apart from their use, are *anoetic*, non-cognitive, not inherently aware of anything; but, instead, are existents with a certain nature—a nature such that, when arranged as they are in the brain and used to cognise, data arise with qualities different according to their arrangement, and acts result. This is my second main contention.

It is the functional nature of consciousness that makes it possible to explain in a natural way its origin from the unconscious. No magical faculty is now needed for transcendence; but transcendence is a natural relation resulting from the causal action of external things on the sense-organs and brain and the causal reaction of the organism to the things, the brain forming an image of them.

Acceptance of these two contentions is rendered difficult partly by the traditional conception of feeling, and partly by the prevailing phenomenalism. The ordinary idea of feeling is that of a contemplated quality; if the feeling be pain, it is not only contemplated, but also disliked and reacted against; yet the feeling is supposed to exist only by being felt—it is purely phenomenal. I ask the reader to believe that a feeling which can produce such effects is *not* merely phenomenal, but that the phenomenon presents a real state of the self, of which pain is the depiction.

But this change of view presupposes the substitution of a substantialist theory of the self for the phenomenism now current. It presupposes the application of critical realism to internal perception as well as to external. That the slow-going coach of philosophy will arrive early at this destination is perhaps too much to expect.

III

L'ÊTRE ET LE DEVENIR

THÈSES DE PHILOSOPHIE NATURELLE

QU'EST-CE que le devenir? Quel est son rapport à l'être? A ces questions, le sens commun a une réponse claire: pour qu'il y ait devenir, il faut que quelque chose existe, et puis change, se change en autre chose. Une semence devient une plante, un enfant devient un homme, un liquide devient un gaz. Le devenir est une relation entre deux êtres. Être est la conception plus fondamentale.

Mais alors nous trouvons que, dans ce que nous avons appelé être, il y a une quantité indéfinie de devenir. Le liquide consiste en molécules, la molécule en atomes, l'atome en protons et électrons, et tous ces éléments sont en mouvement continu. Sans doute, réplique le sens commun, mais, pour se mouvoir, un élément doit être d'abord dans une place, et puis changer de place. Être dans une place, dans beaucoup de places, est indispensable à ce devenir et plus fondamental que lui.

Pour qu'il y ait devenir, il faut un laps de temps, fût-il minime. Quand le mouvement ou le changement est continu, ce qui se meut ou qui change ne peut être dans une place ou dans un état que pour un instant. Y a-t-il donc vraiment des instants? Quelle serait alors leur relation à la durée? Notre problème se transforme en celui de l'analyse du temps.

Changement de place. Il est impossible sans un groupe, aussi petit qu'on voudra, d'éléments dans l'espace. La place est relative, l'arrangement des éléments devient un autre. Mais quelle est la grandeur de l'élément ultime qui, dans ce réarrangement, ne devient pas autre et change seulement de place? Cet élément doit être extrêmement petit. N'a-t-il que la grandeur d'un point? Notre problème inclut celui de l'analyse de l'espace.

Instants et points. Nous n'avons jamais vu ni touché rien de si petit. Avons-nous raison de les affirmer par inférence? C'est

aller derrière les données de l'expérience et diviser les objets jusqu'au bout. Nous n'avons raison de le faire que si les données de l'expérience suggèrent et même exigent une telle inférence. Comment donc l'apparent — ce que l'expérience nous montre — se rapporte-t-il au réel? Et quelle est la nature du réel, de ce qui se meut dans l'espace et le temps? Impossible de répondre sans discuter la nature de la connaissance.

Et ceci nous rappelle qu'il y a des cas de devenir qui semblent ne pas être des changements de place. Qui dit connaissance dit conscience. La conscience, paraissant et disparaissant, est parmi les choses qui deviennent. Quelle est donc la relation de ce devenir au devenir matériel?

Enfin, avec la conscience vient la volonté, qui est aussi un cas du devenir. Son devenir se dit communément libre. Comment cette liberté se concilie-t-elle avec la nécessité du devenir matériel?

Ce formidable problème comprend en soi toutes les principales questions de la philosophie — pour ne pas parler de sa connexion étroite avec les théories et les faits scientifiques. A ce dernier égard il nous faudra être prudents. Avouons franchement que ce que nous dirons sur la grandeur des plus petits éléments, ou sur les conditions de la conscience, pourra appeler des corrections lorsque la physique, la biologie, ou la psychologie auront parlé plus clairement. La philosophie doit prendre ses faits dans la science; sa tâche modeste est d'essayer de clarifier nos idées.

Il apparaîtra peut-être que notre problème est un bon moyen d'attaquer l'énigme fondamentale de l'un et du multiple. Commençons par en bas, et procédons par synthèse. C'est une synthèse provisoire des faits naturels, y compris ceux de l'esprit, que nous voudrions réaliser.

1

Analyse du Temps

Ce qu'il y a de plus petit n'apparaît pas dans l'expérience. Il suffit de considérer les travaux de la physique actuelle pour le reconnaître. Personne n'a jamais vu un proton ou un électron. Nos organes des sens, la structure de notre cerveau, ne sont pas

propres à révéler l'ultra-microscopique; ils servent seulement aux besoins de la vie. Néanmoins, des atomes qu'on peut compter et dont on peut calculer la vitesse doivent être réels. Il y a donc une différence entre le réel et l'apparent — quelle que soit d'ailleurs la nature de ce dernier.

Remettons à plus tard la question, hérissée de difficultés, de la connaissance; nous savons au moins que, au delà de ce que nous pouvons voir et toucher, il y a des choses beaucoup plus petites, et que nous avons raison de les inférer de nos observations. L'intellect a le droit de diviser. De pratiquer des divisions dans l'espace et dans le temps. Mais jusqu'où peut-il légitimement pousser la division?

Prenons d'abord le temps. Le plus clair ici, c'est que nous vivons dans le présent, et que tout ce qui existe n'existe que dans le présent. Le passé est un temps qui a été présent, le futur un temps qui sera présent. Qu'est-ce alors que le présent?

Le présent de notre expérience, le présent qui est une donnée de la conscience, est un petit laps de temps de la longueur d'une fraction de seconde. Sa première partie est déjà passée au moment où nous le percevons; cette partie n'est pas tant une donnée de la perception qu'une donnée de la mémoire, de la mémoire primaire. Mais alors il n'est pas le vrai présent, celui qui s'oppose au passé et qui n'est pas encore passé mais seulement présent. La petite durée appartient au domaine de l'apparent, qui « contracte » ou simplifie les choses pour les besoins de la vie; c'est un présent « spéieux », et nous devons chercher le vrai présent en allant derrière celui-ci, en le divisant. Mais jusqu'où?

Je ne vois de possibilité d'arriver au vrai présent, au présent qui soit exempt de durée, qu'en allant jusqu'au bout — jusqu'à l'instant. Le vrai présent serait-il un instant? Le temps réel consisterait-il en instants?

On essaie d'éviter cette conclusion en suggérant que le présent peut être une durée infiniment petite. Un instant sans durée, dit-on, serait si petit qu'il ne pourrait rien contenir de réel; le mouvement, le changement, disparaîtrait de la réalité. A cette suggestion il faut répondre que toute durée, même une durée infiniment petite, doit contenir plus d'un présent; elle doit

consister en au moins deux présents, qui ne sont pas réels à la fois. La suggestion est donc inadmissible; elle porte en soi une contradiction. Le vrai présent doit être réel en une fois. Il ne peut donc être qu'un instant; le temps doit consister en instants.

Mais comment fait-il alors pour s'écouler? Notre conclusion paraît briser le temps, ce courant en apparence si continu, en un nombre indéfini, peut-être infini, d'instants, sans liaison les uns avec les autres; ce qui contredit une donnée de l'expérience, qui ne peut pas être sans valeur réelle, ou plutôt un caractère de toute donnée, à savoir l'écoulement, la continuité temporelle. Ne sommes-nous pas allés trop loin? De plus, si le temps consiste en instants dont un seul est réel à la fois, cet instant réel doit être suivi (et qu'est-ce qu'être suivi?) d'un autre instant qui en soit le plus proche. Un instant peut-il être le plus proche d'un autre? et comment peut-il l'être? Autant de difficultés auxquelles il faut répondre, pour maintenir l'analyse.

Ne renonçons pas à l'idée si claire et distincte que le présent ne peut être qu'un instant. Trouvons réponse aux difficultés.

Nous avons parlé du temps, comme s'il pouvait y avoir un temps ne contenant rien, un temps vide. Ce n'était pas notre intention véritable; nous voulons autant que possible rester en contact avec la science actuelle, qui rejette l'idée que le temps serait un réceptacle indépendant de son contenu. Mettons donc que dans chaque instant il y a l'univers entier; ou plutôt invertissons les termes, et disons que l'instant est dans l'univers, comme sa dimension temporelle (si on peut appeler un instant une dimension). Tout l'univers est contenu dans, ou existe à, chaque instant — l'instant n'est pas vide, loin de là, et il peut très bien contenir l'univers, puisqu'il doit le faire pour que l'univers existe dans le temps, qui consiste en présents.

L'instant contient l'univers *actuel*. Mais l'univers actuel n'est pas tout ce que contient l'instant; autrement il n'y aurait pas de suite. Il y a une suite (l'expérience nous le prouve): alors il y a, dans l'univers de chaque instant, quelque chose de plus que son être actuel, à savoir, son être futur sous forme de puissance; et en première ligne, toujours sous forme de puissance, son être à l'instant qui sera le plus proche à venir.

Qu'est-ce que l'être en puissance? Je ne sais pas. Je me borne

à enregistrer des faits — les faits comme ils doivent être, pour qu'il y ait écoulement ou suite. Au fond de nos analyses nous nous heurtons toujours, il me semble, contre des faits bruts, que nous ne pouvons expliquer, mais seulement accepter (mais il faut aller jusqu'au fond pour les rencontrer). Oh! je peux dire ce que j'entends par puissance. C'est la condition d'une suite, ce qui rend celle-ci inévitable. (Si le vrai présent était une durée infiniment petite, il n'en contiendrait pas moins le futur sous forme de puissance.)

La puissance de ce qui existe à un instant est un fait qu'il faut admettre pour comprendre la nature du temps. Cette puissance est aussi un pouvoir. J'entends par pouvoir ce qui fait que, dans la suite, il y a du changement. Le pouvoir des choses qui existent à un instant est un fait qu'il faut admettre pour comprendre la nature du changement. Je me fie à mes instincts en admettant ces faits, comme je me fie à eux en admettant qu'il y a quelque chose hors de moi. La philosophie ne peut pas désavouer les instincts, ou elle n'aurait plus de base du tout.

On dira peut-être que je réintroduis une notion de cause trouvée inutile par la science. Nous entendons souvent dire aujourd'hui que la science n'a pas besoin de l'idée de force, qu'elle décrit les successions des événements. — Comment me défendre? Je n'ai pas nié les successions ni les succès de la science; mais, en philosophe, j'ai tenté de dire ce que c'est qu'une succession. Je trouve qu'en cette matière Hume n'a pas poussé son doute assez loin. Puisque, pour qu'on puisse percevoir une succession d'impressions, il faut que la première impression soit déjà passée, c'est-à-dire n'existe plus, Hume aurait dû douter non seulement de la causalité, mais aussi du temps; il aurait dû dire qu'il n'y a pas de temps. L'habitude, à laquelle il réduit toute connaissance d'une cause, n'est-elle pas un bel exemple de causalité? D'ailleurs, ce n'est pas seulement l'habitude, fondée sur un certain nombre d'expériences, qui nous pousse à reconnaître la causalité, mais nous naissons avec un instinct adapté aux modes d'action de la nature qui nous environne et lui-même fondé sur eux; l'antilope qui s'enfuit en voyant un tigre reconnaît la réalité de la relation de cause à effet.

Cette relation est donc aussi ultime que le temps. Temps et cause peuvent très bien être deux aspects de la même relation réelle.

Nous avons dit que la puissance est aussi un pouvoir. Mais il sera commode de distinguer verbalement puissance et pouvoir, et de dire que la puissance est ce qui fait que les choses continuent, ou se créent de nouveau, et le pouvoir ce qui fait qu'elles changent.

Voilà un choix difficile qui vient de se présenter. Nous avons dit que ce qui existe à un instant n'est pas simplement actuel, mais contient une puissance, et qu'en s'actualisant cette puissance produit ce qui existe à l'instant suivant, l'actualisation étant ainsi le lien temporel entre les deux instants du réel. Sans cela, pas de lien, pas de temps, mais seulement un agrégat d'instants. Admettant cette analyse, faut-il dire que l'ancien être instantané, alors qu'il produit le nouvel être instantané, *continue*, et reste ainsi le même? ou dire qu'il *crée* le nouvel être, qui serait alors un être différent?

Examinons les raisons qu'on pourrait alléguer en faveur de l'un et l'autre choix. 1° Au présent instant, le futur n'existe pas; même le plus prochain futur, l'être qui sera à l'instant suivant, n'existe pas à l'instant présent. Alors, pour arriver, il doit être créé. C'est un miracle. Mais l'existence de n'importe quoi est un miracle—quelque chose qu'on ne peut pas expliquer, et qu'on doit accepter. Création, donc. — Mais cette création n'est pas semblable en tout à la création littéraire, ni à la création du monde par le bon Dieu, puisque dans ces exemples les deux créateurs subsistent à côté de leurs œuvres, tandis que l'être instantané antérieur périt en créant l'être instantané suivant. La chose s'accomplit plutôt comme la croissance d'une plante. Alors c'est une création d'une espèce toute particulière. C'est une création qui ne fait qu'assurer une continuité de l'être qui crée.—2° Mais alors, pourquoi ne pas dire que cet être *continue*? Ce mot implique que ce qui existe dans les deux instants est le même. Le même, hormis le temps (le nouveau temps, au moins, est créé). Admettons-le. Mais de cette identité on pourrait vouloir tirer des conséquences. Si le nouvel être instantané est identique à l'ancien, n'est-il pas éternel? Plus encore, n'est-il

pas hors du temps, et employé seulement à le créer?—Gardons-nous de passer trop vite à de tels extrêmes. L'être n'est pas tant que cela hors du temps. Bien que contenant en puissance la vie éternelle, il n'existe actuellement qu'à cet instant-ci, à chaque instant. Il est si lié au temps qu'il crée, qu'il est effectivement et à toute fin utile dans le temps, emprisonné en lui. Sa puissance est limitée à produire un prochain instant, qui contiendra une puissance semblable, et ainsi de suite à l'infini.

Était-ce vraiment une alternative sensée, celle que nous venons de discuter? Je n'en suis pas bien sûr; j'ai le sentiment d'être arrivé aux limites du pensable, et d'opérer avec des conceptions vagues et flottantes. Création et continuation sont peut-être deux manières également admissibles d'exprimer le même fait miraculeux, dont il faut seulement se garder de tirer des conséquences téméraires. Nous n'en tirerons pas dans ce qui suit. Nous voudrions nous en tenir étroitement aux faits tels que les constate la science, qui, confessons-le humblement, est plus sûre que toute métaphysique.

Et pourtant notre discussion nous permet d'aller un peu plus loin. Puisque le nouvel être instantané était contenu en puissance dans l'ancien être, il est le même, non dans le sens d'une identité stricte, mais dans celui d'une dérivation. Rendons-nous clairement compte que nous traitons ici d'une relation ultime, relation que nous apprend l'expérience à n'en pas douter, mais qui est unique et non susceptible d'être analysée en éléments plus simples. Nous avons analysé le temps en instants, mais nous n'avons pas analysé cette relation de dérivation; nous l'avons laissée subsister. Nous en avons besoin comme lien.

Enfin, remarquons que ce lien que nous avons appelé dérivation, ou actualisation de la puissance, n'est pas un événement qui s'insère entre les deux instants du réel. C'est l'arrivée immédiate du deuxième instant. Il n'y a pas d'instant intermédiaire. Ces instants sont donc, pour ainsi dire, en apposition temporelle. Voici justement ce qui fait la continuité du temps, son écoulement sans rupture. Tout événement a une durée, et consiste en au moins deux instants du réel, qui n'existent pas à la fois.

Ce qui précède peut suffire comme analyse du temps.

2

Analyse de l'Espace

Puisque nous avons analysé le temps en instants joints par des liens d'actualisation, il est naturel de s'imaginer que l'espace peut être analysé en points. Rien, il est vrai, ne garantit la correction de cette analogie, si ce n'est que, tout d'une haleine, nous parlons de points et d'instantanés, et que les uns et les autres paraissent avoir le même rapport mathématique aux grandeurs finies. Bâtir sur une telle analogie est peut-être s'exposer à de grosses erreurs.

Mais quelle est l'autre alternative possible? Que l'espace consiste en petites étendues, se répétant à l'infini. Ces étendues seront occupées par quelque chose—nous ne voudrions pas admettre un espace vide, s'il est possible de l'éviter; ce serait un réceptacle, et nous voulons éviter l'espace-réceptacle comme nous avons évité le temps-réceptacle; la science traite l'espace comme dimension de la matière ou, au moins, de quelque chose de réel. Or, une portion de l'espace, même infiniment petite, si elle est encore étendue, serait divisible; ce qui est dans cette petite portion d'espace aurait des parties, indépendantes les unes des autres, parties qui pourraient se séparer et voyager en des directions différentes. En un mot, *ce qui est divisible est déjà en soi divisé*. De quoi il paraît s'ensuivre que ce qui n'est pas divisible, l'élément ultime qui se meut, ne peut être plus gros qu'un point.

Raisonnement tout conceptuel, avouons-le, et fort douteux. N'est-il pas possible, en effet, que les éléments ultimes du réel occupent de petites étendues, et que leurs parties ne puissent se séparer pour des raisons physiques; qu'il y ait donc des granules ou atomes au sens littéral de ce mot? C'est une question que seul le progrès de la physique peut trancher.—Toutefois même ces granules *auraient* des parties, et seraient divisibles conceptuellement, et la division n'aurait de fin qu'en arrivant à des points. Essayons-le donc avec des points.

L'espace peut-il se concevoir comme un ensemble de points? J'avoue que j'ai la plus grande difficulté à imaginer comment

des points pourraient se combiner de manière à former un tout continu à trois dimensions; encore une fois, j'ai le sentiment d'opérer avec des conceptions peu nettes. Ce n'est pas la contiguïté de deux points qui me trouble; un point peut très bien être à côté d'un autre, si ces points sont occupés. La difficulté qu'on trouve communément dans la conception de deux points contigus provient de ce qu'on les conçoit comme vides; car alors ils se fondraient en un seul point. Quand une ligne coupe une autre ligne en un point, ne doit-il pas y avoir de chaque côté un autre point qui soit le plus proche du point d'intersection? C'est comme l'instant, qui peut très bien être suivi par un autre instant. — Mais combien de points y aura-t-il autour de chaque point, et qui en soient les plus proches? Leur nombre doit être non seulement infini, mais, vu les trois dimensions de l'espace, infiniment infini. Voilà ma difficulté. Et pourtant, je ne peux me représenter ce qu'il faut entendre par *un seul endroit* qu'en le concevant comme un point.

Posons donc, avec Leibniz — quittes à être réfutés par des penseurs plus corrects ou plus versés dans les mathématiques — que les éléments du réel occupent des points. Que sont ces éléments?

Ils agissent — c'est-à-dire, produisent des changements. Dès lors, nous pouvons les appeler des *énergies*. On dira peut-être que l'énergie est un rapport entre éléments. Mais puisque chaque élément coopère et fournit sa quote-part à l'action, on a aussi le droit de l'appeler une portion d'énergie. En chaque point de l'espace il y a donc une portion d'énergie. C'est le *pouvoir* dont nous avons parlé en analysant le temps.

Est-ce que la quantité de pouvoir ou d'énergie qu'ils contiennent diffère d'un point à un autre? Nous en venons ici à la question de la variété dans la nature. L'expérience nous montre très clairement que la nature est diverse et variable. On peut concevoir le fondement de cette variété de deux manières. Ou bien il y a un espace vide, dont certaines parties seulement sont occupées, et où les éléments sont plus ou moins rapprochés les uns aux autres, *densité* variable de la matière — mais ce serait là l'espace-réceptacle que nous voulons éviter. Ou bien il faut admettre qu'il peut y avoir plus d'énergie en un point

qu'en un autre, que l'énergie contenue dans les points peut différer d'*intensité*. Nous sommes forcés d'adopter cette dernière conception. Par exemple, il y a probablement plus d'énergie en un point du soleil qu'en un point de l'espace interstellaire. Et en effet, l'énergie coule de point en point, s'accumule ici, se partage là, quittant un point qu'elle a occupé, de manière à laisser ce point presque vide. La conception du plein, celle de Descartes, ne diffère donc pas si radicalement de la conception du vide dans Lucrèce. On ne peut expliquer la variété de la nature sans attribuer à certaines parties de celle-ci une relative vacuité.

Maintenant que nous avons les points, et ce qu'ils contiennent, il s'agit de les lier les uns aux autres — de dire ce qu'est l'espace, comment ils peuvent constituer l'étendue. Evidemment l'espace n'est pas simplement un agrégat de points. Et nous voudrions les lier par le moyen de ce qui se trouve dans les points, ainsi que nous l'avons fait pour le temps.

Voilà une exigence difficile à remplir. Car nous avons dit que l'univers n'existe qu'à chaque instant; et dans un instant il ne peut y avoir d'action. Les éléments coopèrent-ils? Sans doute; mais ils ne le font que dans la transition d'un instant à l'instant suivant.

Tirons la conséquence qui s'ensuit. Dans l'instant, les éléments qui occupent des points, et qui diffèrent entre eux par la quantité d'énergie, ne sont pas liés les uns aux autres. Ils ne forment qu'un agrégat. Il n'y a pas d'espace continu dans l'instant. — Mais comment, alors, peut-il y avoir un espace continu?

Une possibilité se présente à l'esprit. Nous nous rappelons que la science courante parle d'espace-temps. Ces liens, qui ne peuvent pas exister dans l'instant, se forment peut-être dans la transition d'un instant à l'instant suivant. Car le changement est un fait. Nous avons dit que l'énergie coule de point en point, qu'elle se redistribue dans la transition entre deux instants: cela constitue un lien entre les points. On peut supposer que, quand un point contient plus d'énergie qu'un autre, il y a tendance à ce que l'énergie coule du point plus plein dans le point plus vide. Couler, c'est parler comme si l'énergie était identique aux

deux instants, comme si elle *continuait*. Et en effet, la science affirme la conservation de l'énergie. Mais, puisque l'énergie du deuxième instant n'existait pas au premier instant, on peut tout aussi bien, sinon avec plus de justesse, dire qu'elle est *créée*; que la conservation de l'énergie est une création continue.

N'outrons pas le sens de cette manière de parler. Ce qui crée l'énergie actuelle est l'énergie antérieure en tant que puissance; et, en créant, elle périt elle-même. C'est une croissance. Mais une croissance, dont les étapes successives sont combinées d'une manière incompréhensible pour nous, miraculeuse. C'est un miracle naturel. Tout ce que nous pouvons dire, c'est qu'à une certaine distribution des énergies succède une autre, légèrement différente. C'est un fait ultime.

Voilà comment, si je ne me trompe, doit s'analyser le mouvement. Il est cinématographique; avec cette différence, que les espaces parcourus, c'est-à-dire les distances entre les positions successivement occupées, ne sont pas finis mais infiniment petits. Zénon avait raison de dire qu'à aucun instant la flèche ne se meut; *et qu'elle existe seulement dans les instants*. Le mouvement, comme nous le concevons habituellement et comme nous le voyons, est une donnée de la conscience, fabriquée en combinant les positions où la flèche *était* avec celle où elle *est*—positions qui ne peuvent pas être simultanées. Le mouvement n'existe pas; il s'accomplit.

Avions-nous raison de dire qu'il n'y a pas d'espace dans l'instant? Il doit y avoir alors au moins contiguïté et non-contiguïté de points. Définissons cette contiguïté. Deux points sont contigus à un instant si, dans la transition de cet instant au suivant, l'énergie peut couler de l'un des points dans l'autre.

Ce coulement ne se produit qu'entre certains points. Il n'y a que très peu de points (et pourtant leur nombre est peut-être infini) qui soient tellement en rapport avec un point donné que l'énergie puisse couler d'eux en lui ou de lui en eux: seuls les points dont ceci est vrai sont contigus. Tous les autres points sont disjoints ou *séparés* de ce point. La preuve en est le principe, toujours maintenu, je crois, par nos physiciens, qu'il n'y a pas d'action à distance. (Les champs électriques et

gravitationnels pourraient sembler contredire ce principe; mais de tels champs ne sont-ils pas des écoulements d'influence rayonnant d'un centre, et qu'on aurait tort de concevoir en omettant le facteur de succession temporelle?)

La séparation des points qui ne sont pas contigus est aussi essentielle à l'idée d'espace que la conjonction de ceux qui sont contigus. Sans cette séparation, l'espace ne serait pas étendu comme il l'est. Elle est condition de l'indépendance des choses, et littéralement leur donne lieu; elle permet qu'il y ait des soleils, des plantes, et des animaux, et que ceux-ci puissent vivre tranquillement en négligeant tout ce qui est trop éloigné d'eux. Ne laissons pas échapper de notre conception de l'univers cette étendue, cette indifférence mutuelle de ses parties; elle est nécessaire à la vie.

Il y a indépendance même là où il y a contiguïté. Selon notre analyse, même les énergies dans les points contigus ne sont pas liées à un instant, mais seulement entre les instants. Cela est nécessaire pour que les pouvoirs soient plusieurs et pas un, et qu'ils coopèrent par entraide ou par résistance mutuelle. Ne nous émerveillons pas de trouver que la nature est une pluralité; n'est-ce pas le plus manifeste des faits? Du reste, elle n'est pas une pluralité sans liens, un pur agrégat; mais ce qui lie ses parties ultimes, c'est l'action.

Les liens qui constituent l'espace, et le rendent continu, ne se forment que dans la transition d'instant à instant, où s'actualisent les pouvoirs. L'espace n'existe pas, il se fait. Ce faire est un fait ultime. C'est un troisième miracle, ajouté à celui de l'existence et celui de la continuation. Inutile de vouloir l'expliquer. Nous n'avons fait que le constater.

Voilà tout ce que j'ai à dire sur l'analyse de l'espace. C'est celle de mes thèses que j'avance avec le moins de confiance. Ce n'est qu'une tentative plus ou moins vague, la suggestion d'une possibilité. J'espère seulement que je n'ai pas commis de grosses erreurs! Je me sens, en cette matière, comme une personne qui regarde à grande distance et s'efforce de discerner la nature de choses lointaines. Peut-être y a-t-il d'autres personnes qui ont des yeux plus perçants et qui voient plus clair. En ce cas, j'écouterai avec attention ce qu'elles diront voir.

Avant d'aller plus loin, combinons nos thèses sur l'espace et le temps.

Tous deux sont des liaisons réelles entre êtres qui à chaque instant restent sans liaison et, ainsi, indépendants les uns des autres; liaisons qui s'établissent quand les choses continuent d'être tout en changeant, et qu'un de leurs arrangements se transforme en un autre. Ces deux ordres, le temporel et le spatial, sont indissolublement unis, puisqu'ils sont créés par la même action. Ils n'en sont pas moins distincts. On ne devrait pas dire que le temps est une dimension de l'espace; tout ce qui demeure vrai, c'est que le temps peut être traité mathématiquement comme s'il était une telle dimension, par les mêmes équations différentielles. Ce qui pourrait, avec plus de raison, être appelé une quatrième dimension de l'espace est l'intensité, la quantité d'énergie que contient chaque point en un instant. Il se peut que cette quantité, ou le rapport entre ces quantités dans une petite étendue, indique ou préforme le cours que l'énergie suivra de cet instant à l'instant prochain.

L'être et le devenir sont donc distincts. Le devenir est quelque chose qui arrive aux êtres, quelque chose qu'ils font. Il présuppose des êtres; il est donc plus complexe que l'être, occupe un plan logiquement supérieur. Ainsi nous avons reconnu la réalité des deux catégories fondamentales de *substance* et de *cause*, précisé leur rapport, et admis qu'elles sont de type différent.

3

Nature de l'Être

Si le temps et l'espace se font ainsi, si telle est la structure de l'univers, comment se fait-il qu'il contient des êtres doués de conscience et de volonté? Ces fonctions immatérielles sont parmi les choses qui deviennent; et nous n'aurions résolu notre problème qu'à demi, en omettant sa partie la plus difficile, si nous les néglignons. Sera-t-il possible de les expliquer, comme nous voudrions le faire, sans introduire d'autres êtres que ceux qui occupent des points à des instants et qui font l'espace-temps par leur écoulement? La possibilité de ceci dépend de la nature de ces êtres.

Jusqu'ici nous avons appelé cette nature *énergie*. Mais n'était-ce décrire la substance en termes de l'autre catégorie, en termes de causalité? En effet, le mot énergie désigne, soit le pouvoir, fait ultime qu'on ne peut imaginer mais seulement accepter, soit des effets produits par ce pouvoir. C'est une description en termes de causalité, une description tout extérieure. Qu'est-ce donc que la substance en soi?

La physique ne peut pas nous le dire. Elle décrit le réel en termes de l'apparent. Elle mesure avec exactitude les changements de place d'elle ne sait pas quoi.

La perception par les sens ne nous permet de connaître les choses hors de nous que de cette manière extérieure et superficielle; pour elle, leur nature intime reste inconnue. Mais nous avons aussi une perception intérieure de nous-mêmes. Nous savons, par celle-ci, que ce qui est extérieurement corps peut être intérieurement âme. Ce n'est que par le moyen d'états de nos âmes, et sous forme de représentations ou visions données à eux, que nous percevons les corps.

Ou bien donc la nature de la substance extérieure est inconnaissable; ou, s'il est possible de la connaître, ce ne sera qu'en utilisant ce que nous aurons appris par la perception intérieure de la nature de notre propre substance.

Il est donc possible que ce que nous appelons matière soit de même nature que l'âme. Un fait d'expérience, qui peut nous incliner à adopter cette hypothèse, est que nos âmes sortent de la matière, au cours de l'évolution comme dans la vie quotidienne, d'une manière qui paraît être tout à fait naturelle. Quoi de plus naturel que de s'éveiller après le sommeil? Le graduel avènement de la conscience chez l'enfant doit être tout aussi naturel, et naturel aussi son premier avènement dans le règne animal.

Commençons par appeler du terme vague *animation* cette nature que nous soupçonnons dans les choses extérieures. Nous la définirons exactement dans la suite. Notre thèse sera celle de Spinoza, que *omnia quamvis diversis gradibus animata sunt*.

On objectera que les organismes sont toujours engendrés par d'autres organismes, et qu'il ne faut pas inférer de la nature des organismes celle des choses inorganiques. — Ce qui maintient

en vie le vitalisme, si on peut risquer une conjecture, n'est pas tant l'organisation que l'animation, celle des animaux, et l'opposition marquée qu'établit le sens commun entre les êtres animés et inanimés. Inanimé, ici, veut dire inconscient, incapable de conscience; et il serait absurde, en effet, de supposer que les choses inorganiques sont conscientes. Mais, de ce qu'elles sont inanimées en ce sens, il ne s'ensuit pas qu'elles ne soient pas animées en un autre.

Qu'est-ce, après tout, que l'organisation? C'est une espèce de forme. Par forme, j'entends un arrangement d'êtres. L'organisation est un arrangement d'êtres qui a pour résultat que l'organisme continue. Or, quand les êtres sont arrangés de cette façon, ils ne diffèrent aucunement, en tant que forces, de ce qu'ils étaient quand ils n'étaient pas organisés; ils ne font que collaborer de manière à produire un résultat vital. Non seulement ils ne diffèrent pas comme forces, mais ils ne diffèrent pas en nature. Si donc, quand ils sont organisés, il est de leur nature d'être animés—de former des âmes—ce doit être là aussi leur nature quand ils ne sont pas organisés.

Nous sommes en face d'un dilemme. Ou bien la conscience, quand elle arrive, survient miraculeusement—et le dualisme cartésien est notre doctrine; ou, si la conscience vient naturellement, c'est que la nature dans toutes ses parties est animée. En ce dernier cas, il faut distinguer entre animation organisée et animation désorganisée, inorganique.

Qu'est-ce donc que l'animation? Précisons cette idée.

En le faisant, il y a une erreur à éviter. Nous ne devons pas attribuer aux êtres ultimes des propriétés qui résultent de l'organisation. Même en nous servant de ce mot d'animation, nous avons parlé comme si c'étaient de petites âmes. Nous étions forcés de parler ainsi, parce que de ce côté des choses nous ne connaissons que notre propre âme; mais c'était comme si (supposons-le) nous ne connaissions dans le monde physique que le cerveau, et que, pour indiquer la nature des autres choses physiques, nous avions dit qu'elles sont *cérébrales*. Ce serait vrai, mais seulement à condition d'ôter l'organisation.

On aura remarqué que jusqu'ici j'ai suivi en maintes choses les traces de Leibniz. Mais, dans la matière qui nous occupe,

Leibniz a commis, à mon avis, une sérieuse erreur. Il a eu raison de dire que les monades n'ont pas de fenêtres. Il a eu tort quand, pour préciser la nature de leur animation, il a dit qu'elles ont des *perceptions* et des *appétitions*. C'était faire d'elles de petits animaux. Par suite de cette erreur, il a été obligé de nier tout rapport les reliant en un monde—de nier la réalité de l'espace et du temps.

Nous ne devons pas concevoir nos êtres ultimes comme si c'étaient des organismes. Comment pourrait-il y avoir un organisme sans organes? Comment y aurait-il perception et appétition là où il n'y a ni organes des sens ni cerveau ni muscles, ou leurs équivalents? Cette idée n'était possible qu'à une époque où on pouvait croire que l'âme était contenu^e toute entière dans la glande pinéale. C'était méconnaître l'importance de la complexité, de l'arrangement, ne pas entrevoir les choses surprenantes qui peuvent s'ensuivre de la multiplicité et finesse des éléments ultimes et de la variété possible de leur arrangement.

Mais d'autre part, il nous faut bien attribuer aux éléments une nature qui leur permette, quand ils sont arrangés organiquement, de former des animaux conscients. Quelle est cette nature?

Nous devons chercher au fond de nous-mêmes, et prendre ce que nous y trouverons de plus simple. Eh bien! ce qu'il y a de plus simple en nous, c'est la sensation.¹ La sensation est un pur état, fermé sur lui-même, sans fenêtres par lesquelles il verrait ce qu'il y a dehors. Une autre chose très simple que nous trouvons en nous est l'impulsion, qui est l'essence de l'instinct. Substituons donc ces deux choses à la perception et l'appétition de Leibniz. L'impulsion sera la nature intime de la puissance ou du pouvoir que nous avons constaté dans nos petits êtres, et qui nous autorisait à parler d'eux comme d'énergies. La sensation, ne sera-t-elle pas ce que nous avons appelé leur actualité, ou une partie au moins de cette actualité?

¹ J'entends par « sensation », non la perception d'une qualité, mais l'état de celui qui la perçoit—non le senti, mais le sentant. Ne pas vouloir distinguer entre la sensation et l'acte de percevoir une qualité, c'est comme si on ne voulait pas distinguer entre l'estomac et la digestion, ou entre les jambes et la marche. Ce n'est pas en cogitant que nous sommes, mais en sentant.

Sensation. C'est un grand mot—un mot beaucoup trop grand. La plus petite sensation que nous découvrons en nous cache une complexité énorme, comme nous pouvons le voir en considérant sa base organique. Elle doit être formée par la «contraction», comme dit M. Bergson, d'une multitude inconcevable de petits êtres. Toutefois, pour pouvoir produire ce résultat, ceux-ci doivent être de même nature que la sensation. Nous sommes forcés de nous servir de ce mot. Disons donc que ce qui occupe un point à un instant est une minuscule *sensation-force*. Ou bien celle-ci est la nature des êtres ultimes, ou leur nature est inconnaissable. Ou le mot *être* a ce sens, ou je ne saurais y attacher aucun sens positif. Car, comme nous avons vu, je ne conçois la force que par ses effets.

Imaginons maintenant que nos systèmes nerveux consistent en un nombre immense de sensations-forces, dont chacune est, pour ainsi dire, un petit point de lumière intérieure; que celles-ci se recréent continuellement et, par leurs pouvoirs, déterminent le changement, s'entretenant toujours de manière nouvelle. N'aurions-nous pas ainsi quelque chose qui ressemble fort à l'âme—et qui pourrait apparaître du dehors comme un système nerveux?

A cette tentative de construire l'âme on opposera une objection fondamentale. Vous avez omis l'essentiel, dira-t-on. *Chaque point ne sentirait que lui-même*. Il n'y aurait pas de conscience. La conscience, pour parler avec Leibniz, «doit envelopper une multitude dans l'unité ou dans le simple». C'est la conception de la conscience dont est issue sa théorie des monades.

Mais nous avons réponse à cette objection. Je vais montrer que la conscience est une fonction transitive, par laquelle l'âme entre en rapport avec un objet; que tous deux, âme et objet, sont multiples; et que ce qui est un n'est que le regard par lequel l'âme contemple l'objet. Il y aurait contradiction si ce qui est multiple et ce qui est un était la même chose. Le regard est un, et la vision qui se présente à lui enveloppe une multitude. Et tout cela peut s'expliquer naturellement.

4

Mécanisme de la Conscience

Les états de l'âme, étant des états de sensation, n'ont aucune perception de ce qui est hors d'eux. Ils n'ont aucune perception d'eux-mêmes. Mais quelques-uns d'entre eux sont des effets d'objets extérieurs, des effets qui imitent ou réfléchissent ces objets comme font des miroirs. L'organisme est construit de manière à utiliser ces effets comme des signes d'objets, afin de se servir de ces derniers ou de les éviter; ce qu'il fait en réagissant, non à son état comme tel, mais à ce que son état signifie, et surtout en y portant son attention. L'attention, c'est la tension instinctive vers ce qui importe pour la vie.

N'est-il pas concevable que, quand nous recevons de cette façon sensible les effets des objets et que notre attention se porte sur eux, ils *apparaissent*—non à quelque chose d'un ou de simple, mais à cette multitude organisée de sensations-forces qui forme notre être intime? Voilà une thèse qui expliquerait la conscience. L'utilisation des états de l'âme comme signes a pour effet de faire surgir des représentations.

Notez (ce point est très important, si on veut bien saisir la possibilité que les représentations aient cette origine) que les sensations utilisées ne sont pas exclusivement visuelles ou exclusivement tactiles, mais comprennent toujours aussi les sensations musculaires que cause l'acte d'attention, la réaction de regarder ou de toucher. Quand nous regardons un objet, les sensations visuelles qu'il évoque, et les sensations musculaires qu'évoque notre acte de regarder, se confondent, et donnent naissance à la représentation *un objet à une certaine distance*.

Disons avec précision quelle est la nature de ces représentations. Ce sont des *significations sensibles*, qui ne sont identiques ni à nos états ni aux choses extérieures qu'ils se représentent, mais que l'organisme doit identifier avec ces dernières pour pouvoir les connaître. Ces représentations sont évidemment de pures apparences, sans substance et sans pouvoir. On peut légitimement, avec Locke, les appeler des *phantasmes*. Tout le

travail de la perception et de la pensée se fait avec des phantasmes.

Même la perception intérieure, notre conscience de nous-mêmes et de nos états, se fait avec eux. Ces états, au moment où ils existent, ne se perçoivent pas; ils ne font que sentir. C'est seulement après coup, et en utilisant les copies que nous en livre la mémoire primaire, que nous pouvons en avoir conscience. Les représentations intérieures qui nous apparaissent alors ne les montrent que sous une forme très simplifiée—comme d'ailleurs nos perceptions des objets extérieurs ne nous en montrent que ce qui concerne notre action. Mais, puisque la perception intérieure se fait avec des copies, nous pouvons admettre avec confiance qu'elle révèle correctement la nature des états perçus—cette nature que nous avons appelée *animation*. C'est là la clef de voûte de notre philosophie naturelle.

Pour bien assimiler cette théorie de la conscience, il faut considérer séparément trois facteurs, et peser la contribution de chacun: 1° les sensations-forces, 2° leur projection comme signes par la réaction, 3° l'effet simplifiant de l'attention, qui ne s'occupe que de ce qui importe pour la vie. En pesant bien ces facteurs, sans oublier les importantes sensations musculaires, on verra, je crois, que des phantasmes peuvent et doivent s'engendrer. Illustrons-le par un cas spécial, la perception de l'espace.

Nous avons conçu nos sensations-forces comme liées ensemble dans l'espace-temps. Par leur écoulement continu elles sont liées plus ou moins étroitement, selon la quantité de pouvoir que contient chacune et selon la complexité de leur arrangement. Ceci doit s'appliquer à l'âme. L'âme est donc dans l'espace, et non seulement dans le temps—temps et espace, ne sont-ils pas deux aspects de la même action? Voilà un fait qui nous permet d'expliquer la genèse de phantasmes qui montrent l'espace. Un arrangement de sensations visuelles ou de sensations tactiles dans le cerveau, en provoquant une réaction dirigée vers l'objet qui les a causées, et en se combinant avec les sensations musculaires simultanées que cause notre regard ou notre attouchement, peut donner naissance à un phantasme visuel ou tactile qui sera étendu et paraîtra situé hors de nous. Nous ne verrons ni ne toucherons les parties les

plus petites des choses; l'attention n'éclaire que ce qui est utile pour la vie.

Si cette théorie est correcte, nous avons réussi à expliquer la conscience sans nous servir d'autre chose que de nos petits êtres. Confessons qu'il peut y avoir ici des secrets que notre théorie ne soupçonne pas. Du moins elle semble procéder par grandes lignes justes.

Notre théorie de la conscience nous permet de comprendre et de juger la situation qui existe depuis des années dans la théorie de la connaissance. Il est facile, même pour de graves philosophes, de supposer que les phantasmes ne sont pas seulement identifiés par nous avec les choses, mais qu'ils leur sont identiques—que le réel est l'apparent. Ainsi naît le phénoménalisme — la théorie, ou conviction instinctive, ou le faux principe que les phantasmes sont l'étoffe même des choses — source de tous nos maux en philosophie. Ce qui est vrai, c'est que nous ne connaissons les choses que par le moyen de représentations, et que seules celles-ci nous sont données. Le scepticisme se sert de la non-identité des représentations et des choses représentées pour mettre en doute l'existence de ces dernières; l'agnosticisme s'en sert pour nier que les choses réelles puissent être connues. Qu'avons-nous à leur répondre?

Premièrement, que les représentations résultent toujours d'effets produits par l'action des objets sur nos corps, et ne seraient pas sans cette action. Sauf logiquement, une idée n'est pas identique à la chose dont elle est l'idée! Deuxièmement, que ces visions ne surgiraient pas si nous n'avions pas agi, par notre regard ou notre attouchement, comme si les objets étaient réels indépendamment de nous. La conscience est une partie de la connaissance, elle n'en est pas le tout. Elle est par essence une fonction transitive, et c'est supprimer sa nature transitive que de nier soit l'existence indépendante des objets, soit la possibilité de les connaître.

En tant qu'êtres naïfs et encore innocents de tout sophisme, nous présumons avec une entière confiance et l'existence des choses et la réalité de la connaissance que nous en avons. La nature nous a donné cette confiance comme un instinct, parce qu'elle ne pouvait pas construire la connaissance autrement

qu'elle ne l'a fait—c'est à-dire autrement que comme rapport extérieur, fragile, ne dépendant que de l'action de part et d'autre, et ainsi exposé aux assauts des incrédules. Ce n'est pas une raison pour que la philosophie, aspiration à la connaissance, en nie la possibilité.

Ne nous laissons pas ensorceler par le brillant de ces données sensibles, qui fit penser à Hume qu'elles sont elles-mêmes les choses perçues, et à Kant que nous ne percevons pas les choses en soi. A quoi avons-nous à ajuster nos rapports, si ce n'est pas aux vrais pouvoirs des choses? La confiance instinctive a manqué à ces grands philosophes. Ils n'ont pas vu que l'expérience est connaissance, limitée mais essentiellement vraie, de ce qui existe.

Ainsi notre théorie de la conscience ne détruit pas, mais établit—et sur la seule base possible—la validité de la connaissance. Et nous avons déduit la conscience comme une conséquence nécessaire de l'organisation de nos petits êtres. Objectera-t-on que nous n'avons pas expliqué l'organisation? Cette tâche appartient aux biologistes, mais disons-en un mot. L'ensemble de sensations-forces qu'est un animal doit s'adapter aux choses qui l'entourent, autrement il ne pourrait pas se maintenir comme un organisme. La matière serait-elle incapable de se disposer en une forme qui se conserve, pour la durée d'une vie animale? On ne devrait pas vouloir prédire ce que peuvent des arrangements très complexes, et ce qu'ils ne peuvent pas. On ne devrait pas dénier à la matière inorganique le pouvoir de former naturellement de tels arrangements. Enfin, on ne devrait pas nier *a priori* que la conscience en puisse sortir. Pas de difficulté sérieuse, je pense, de ce côté.

Mais on dira peut-être que nous ne pouvons pas expliquer la volonté, et surtout comment elle peut être libre.

5

Libre Arbitre

Voyons d'abord comment cette question se présente dans la discussion contemporaine. La physique prend l'univers entier comme son domaine; elle ne veut laisser aucun événement in-

expliqué, et demande que l'explication en soit physique. C'est affirmer le déterminisme. Contre quoi le sens commun proteste. Et un nombre considérable de physiciens font écho à sa protestation; ils cherchent dans l'ultra-microscopique un moyen d'échapper à cet emprisonnement redouté dans la matière.

Je crois qu'il y a là un malentendu. On peut douter si ces physiciens, et le sens commun qu'ils représentent, ont bien compris ce que c'est que la liberté dont nous avons conscience. Sans vouloir discuter à fond ce problème trop discuté, je voudrais appeler l'attention sur certaines considérations souvent négligées, et qui me paraissent décisives. Ne pensez pas que je vais nier le libre arbitre. La liberté est à la volonté ce, que la lumière intérieure dont nous avons parlé est à la conscience. Mais on peut demander ce qu'est ce moi qui est libre, et en quoi consiste sa liberté.

Le moi, c'est l'individu pris comme un tout. Plus précisément, c'est la partie de l'individu, résidant dans ses centres nerveux et en dernier lieu dans l'écorce cérébrale, qui détermine son action. Cette détermination est-elle purement physique? Mais, selon notre doctrine, ces apparences matérielles ne sont qu'un voile transparent, qui couvre une organisation très complexe de sensations-forces; organisation qui révèle sa complexité cachée à mesure qu'avance la science physique et psychologique. Nous apparaissant comme l'activité des centres inférieurs, il y a des instincts; nous apparaissant comme celle de l'écorce, il y a des pensées. Le moi qui sent et qui pense, c'est la substance qu'on trouve en transperçant ce voile matériel, c'est la réalité de nos êtres. Notre moi central est soutenu par l'ensemble des sensations-forces qui nous apparaît sous la forme du reste de notre corps; mais c'est lui, en fin de compte, qui vent.

La réalité du moi et sa nature comme être sentant, voilà le premier fait dont il faut se rendre clairement compte si on veut comprendre ce qu'est la liberté.

Le deuxième fait est l'efficacité de ce moi. Un moi composé de sensations-forces ne peut pas manquer d'être efficace. Nous ne dirons plus, comme on disait autrefois, que le cerveau est efficace, mais que la conscience ne l'est pas—ou plutôt, cela est

vrai, mais le cerveau, c'est l'âme, et le moi n'est pas la conscience, il est l'âme consciente. La conscience ne fait qu'exprimer, sous forme de phantasmes, les pensées qui agitent l'âme; c'est l'âme qui les exécute. Elle les exécute en voulant.

Troisième fait, très important: le moi qui veut est *actuel*. Il n'est pas dans le passé, mais dans le présent. Son histoire passée l'a rendu tel qu'il est; mais, puisque ses états passés n'existent plus, ils n'ont aucune influence sur ce qu'est et ce que fait le moi à présent. Le moi a donc toute liberté de faire ce qu'il veut.

Il ne sait pas toujours dès l'abord ce qu'il veut. Par conséquent, il doit délibérer, et choisir. Cela, pour laisser à ses instincts et ses idées le temps de déterminer son action. C'est ainsi, du moins, qu'agit tout homme raisonnable; il est loin de vouloir ce qu'il n'est conforme ni à ses idées ni à ses instincts.

La délibération implique que nous avons, à chaque moment, une nature définie. Nul individu n'a une nature exactement semblable à celle d'un autre. Chez l'un, certains instincts ont plus de force que chez son voisin; les pensées aussi varient à l'infini, selon les expériences que l'on a eues et selon la capacité qu'on a de sentir et de penser.

Nous sommes libres dans notre pensée, et non seulement dans notre vouloir. Quand nous réfléchissons sur une question, nous ne savons pas d'abord ce que nous devons penser; nous réfléchissons pour laisser nos sensations, nos mémoires, et nos habitudes déterminer notre jugement. Aucune personne raisonnable ne voudrait que sa résolution d'un problème intellectuel ou pratique fût déterminée autrement. La liberté de pensée, c'est donc une liberté d'être déterminé par la raison, une liberté provisoire.

La liberté de vouloir n'est-elle pas semblable? Dans une conjoncture de circonstances, nous ne savons pas d'abord ce que nous devrions choisir. La nécessité d'un choix vient de la multitude des facteurs qu'il faut considérer, et de l'incertitude où nous sommes de ce qu'auront à dire nos instincts, nos goûts, et nos idées sur le bien. Donc, délibération pour devenir conscients de nous-mêmes et de notre situation; liberté provisoire.

Qu'il me soit permis de dire en toute liberté ma pensée. Je

pense que la liberté, telle que je l'ai décrite, devrait satisfaire tout homme raisonnable.

Si elle ne le fait pas, c'est peut-être par suite d'une idée fausse qu'il est important de réfuter, et qui est réfutée par un quatrième fait, le suivant.

On s'imagine que, si on a une nature définie, on pourrait être contraint par sa nature, de manière à ne plus agir librement. Or, nous ne serions contraints que si notre nature se trouvait, pour ainsi dire, hors de nous, comme un objet. Le quatrième fait est que cette possibilité est une illusion. *Le moi ne peut pas être un objet pour soi-même au moment où il veut.* S'il le pouvait, il pourrait, cela est vrai, se sentir contraint par les caractères et les aptitudes qu'il discernerait dans cet objet; il pourrait dire, je suis tel et tel, et conséquemment mon action est nécessaire, elle n'est pas libre. Mais nous avons vu que la conscience de soi-même est rétrospective, qu'elle dépend de la mémoire primaire; de sorte que c'est toujours son moi passé qu'on connaît, jamais son moi présent, et qu'il est impossible en même temps de se connaître et de vouloir. La nature qu'a un homme n'est pas un fait extérieur à lui, qui pourrait le contraindre; c'est son essence même.

Je n'ai pas l'audace de croire que mes subtils raisonnements convaincront l'indéterministe. Par désir d'être justiciable de la morale, ou par caprice, ou par détestation de la monotonie et amour du nouveau et de l'étrange, on voudra que le futur soit indépendant du passé. On aimerait avoir un moi si équilibré et si fondamentalement indécis qu'il pût aller on ne sait où. Il est vrai que ce qui arriverait à ce moi pourrait ne pas correspondre à ses idées ou plaire à ses instincts. C'est qu'on veut un peu d'arbitraire, ne fût-ce que comme un assaisonnement à la vie trop insipide.

Eh bien, on n'a peut-être pas entièrement tort; notre philosophie naturelle peut satisfaire à cette demande. Il y a un trait de la nature dont nous n'avons pas encore fait mention, et qui nous permettra de compléter ce résumé, si abstrait, des facteurs de l'univers. Ce trait, c'est le *hasard*. Non pas un hasard, bien entendu, qui serait en contradiction avec la causalité, que je crois universelle; mais le hasard au sens de contingence.

Les énergies qui forment l'univers sont à chaque instant distribuées arbitrairement — c'est-à-dire d'une manière que nous n'aurions pu prévoir, et que seule l'expérience nous apprend à connaître. Nous n'aurions pu prévoir qu'il y aurait tant d'étoiles arrangées comme elles le sont, qu'il y aurait tels et tels hommes en ce moment à certaines distances de nous, et qu'il pleuvrait aujourd'hui. Or, tout arrive en ce monde comme la pluie et le beau temps. Ce sont autant de contingences, c'est-à-dire, de contacts, produits par l'écoulement des énergies de point en point de l'univers et se rencontrant en certains points. Chaque nouveau moment est un moment de nouveauté. La nature est l'empire de l'imprévu, de l'arbitraire.

La connaissant si peu, nous ne pouvons pas prévoir ce qui arrivera à la terre dans les siècles à venir, peut-être par l'irruption d'un astre comme celui qu'on imagine avoir donné naissance au système solaire. Pareillement, nous ne pouvons pas savoir quelles influences, venant de l'infiniment petit ou d'en dehors de nous, agiront peut-être sur nos centres nerveux de manière à modifier nos décisions. J'espère que mes amis indéterministes seront contents de cet élément d'arbitraire, qui les délivrera de la nécessité de supposer que leur choix est déterminé uniquement et irrémédiablement par la constitution présente de leur propre nature.

Non, cette remarque n'est pas saturnienne; loin de nous cet esprit. Ce n'est que la reconnaissance franche de ce qui me paraît être vrai en fait. La nature extérieure est indifférente à nos biens et à nos maux. Elle n'est pas bienveillante ou malveillante; elle ne connaît et ne veut rien. Comment supposer que chaque coup de vent, chaque poussée des vagues, se fait en vue d'un but? La nature n'est pas éveillée comme nous; elle est endormie, et tout ce qu'on peut dire, c'est qu'elle contient en puissance les hommes et leur conscience. Mais elle contient bien cette puissance. Elle n'est pas morte, mais vivante. Et nous sommes ses enfants, chair de sa chair, héritiers de sa vie, de sa variété, et de son ordre mathématique; mais des enfants devenus adultes, et dont c'est la tâche de régler eux-mêmes leurs vies selon les données de la conscience. Voilà que notre théorie explique même le devoir!

Concluons sur le libre arbitre. Nous avons vu que le temps et l'espace sont faits par l'action, et que l'action est l'actualisation des pouvoirs contenus dans les petits êtres. Ainsi la causalité est ce qui maintient ensemble l'univers. Rien ne peut se soustraire à elle. Or la volonté est un cas spécial de l'action. Vouloir échapper à la causalité en ce cas spécial — comment faut-il caractériser une telle aspiration? C'est comme si un oiseau, non content de pouvoir voler en haut ou en bas, vers le nord, le sud, l'est ou l'ouest, estimait sa liberté diminuée s'il ne pouvait voler hors de l'air. La causalité est le milieu dans lequel nous vivons; c'est le seul gage de l'efficace de nos volontés, de la solidité de nos caractères, et même de la vérité de la connaissance.

Quel étrange caprice que celui de craindre le mécanisme, sans lequel nos systèmes nerveux n'agiraient ni nos cœurs ne battraient! Le mécanisme, c'est le mode de devenir de l'être. Ce mode est mathématiquement exact. Il s'exprime dans l'espace et le temps, qui sont, comme on a très bien dit, « la Raison immatérielle, à qui toute la Nature obéit ».

IV

VOLTAIRE ON FREE WILL

THE following dialogue, written with all Voltaire's verve and point, seems worthy of reproduction at a moment when the present impossibility of determining certain physical facts is taken by some as a loophole through which to introduce "freedom" into the world.

What is good in this dialogue is, that it shows so forcibly that a man regards himself as free when he does what he is led by his instincts to do: in other words, that the freedom of which we have a sense is not indetermination, but is the absence of compulsion from without. Freedom may be defined as *unhindered efficacy of willing*; and that is what we mean when we say, I am free to lift my arm.

The dialogue forms part of the *Dictionnaire Philosophique*.

A.—A battery of cannon is firing close to our ears: are you free to hear it or not to hear it?

B.—Doubtless I'm not. I can't help hearing it.

A.—Do you wish this cannon to take off your head, and those of your wife and daughter who are walking with you?

B.—What a question! I cannot, as long as my wits are intact, wish such a thing. It is not in my power.

A.—Good. You necessarily hear this cannon, and you necessarily wish not to die or to have your family die by cannon-shot while out walking with you. It is not in your power not to hear, or in your power to will to remain here.

B.—That is clear.¹

¹ Note by Voltaire, 1769.—One of the poor in spirit, in a little writing that is honest, courteous, and above all, well reasoned, objects that if the head of the State orders B to remain exposed to the cannon-shot, he will obey. No doubt he will, if he has more courage or rather more fear of shame than love of life, as very often happens. But, first, that is a different situation from the one we are discussing. Secondly, when instinctive fear of shame prevails over the

A.—You have consequently moved thirty paces to get out of the way of the cannon. You had the power to walk with me these few steps?

B.—That, too, is quite clear.

A.—And if you had been a paralytic, you couldn't have avoided exposure to the battery; to be where you now are would have been out of your power; you would necessarily have heard and been hit by the cannon-shot, and would have died necessarily?

B.—Nothing could be more true.

A.—In what, then, does your freedom consist, if not in the power you have as a separate person to do what your will demands with an absolute necessity?

B.—You embarrass me; then freedom is nothing else than the power to do what I will?

A.—Reflect about it, and see whether freedom can be otherwise understood.

B.—In that case my harrier is as free as I am; he necessarily wills to run when he sees a hare, and it is in his power to do so if there is nothing the matter with his legs. I am no better than my dog; you lower me to the level of the beasts.

A.—Those are the poor sophisms of the poor sophists who have taught you. You fall ill at the thought that you are free in the same way as your dog! Don't you resemble your dog in a thousand ways? Hunger, thirst, waking, sleeping, the five senses—are not all of these common to you both? Do you wish to smell otherwise than with a nose? Why do you wish your freedom to be different from his?

B.—But I have a mind much given to reasoning, and my dog scarcely reasons at all. He has few ideas that are not simple, while I have a thousand metaphysical ideas.

A.—Well, then—you are a thousand times freer than he; that is to say, you have a thousand times his power to think. But you are not free otherwise than he is.

instinct of self-preservation, the man is as much necessitated to remain exposed to the cannon as he is necessitated to flee when it is not shameful to flee. The poor-spirited person was necessitated to make ridiculous objections and to add insulting remarks, and philosophers feel themselves necessitated to poke fun at him and to pardon him.

B.—What! I am not free to will what I will?

A.—What do you mean by that?

B.—I mean what everyone means. Do not we hear every day that “the will is free”?

A.—A maxim isn’t a reason. Explain yourself better.

B.—I mean that I am free to will as it may please me.

A.—By your leave, that is nonsense. Don’t you see that it is absurd to say, “I will to will”? Your will comes necessarily, in consequence of the ideas that present themselves to you. Tell me—have you the will to marry? Yes, or no?¹

B.—Suppose I should say, I will neither the one thing nor the other.

A.—You would be like the man who said, “Some people believe Cardinal Mazarin to be dead, others believe him to be alive, but I believe neither the one thing nor the other.”

B.—Well, then—I want to get married.

A.—Ah! that’s what I call answering. Why do you want to marry?

B.—Because I am in love with a young person, who is beautiful, kindly, well bred, sufficiently rich, who sings charmingly, and whose parents are excellent people, and flatter myself I am loved by her and acceptable to her family.

A.—That’s a reason. You see you cannot will without a reason. I declare to you that you are free to get married: that is, it is in your power to sign the contract.

B.—What do you say? I cannot will without a reason? What would become of that other maxim, *Sit pro ratione voluntas*—my will is my reason—I will because I will?

A.—That is absurd, my dear friend; there would be in you an effect without a cause.

B.—What—when I play odds or evens, I’ve a reason for choosing even rather than odd?

A.—Why, of course!

B.—And what, pray, is this reason?

A.—That the idea of even has presented itself to your mind, rather than the contrary idea. ’Twould be strange if there were cases where you will because of a cause of volition, and other

¹ Voltaire seems to have forgotten that the man had a wife and daughter.

cases where you will without cause. When you will to get married you feel the determining reason, evidently; you don't feel it when you play odds or evens, and yet there must be one.

B.—But—once more—then I am *not* free?

A.—Your will is not free, but your acts are. You are free to act when you have the power to act.

B.—But I've read such a lot of books about the freedom of indifference.

A.—They are stupid books. There's no such thing as the freedom of indifference; that is a phrase devoid of sense, invented by persons who themselves possessed very little.

We need not subscribe absolutely to what Voltaire says about the freedom of indifference; something of which that is a not unfair description occurs when we are simultaneously solicited by two instincts of equal strength, or when we cannot for the life of us see which of two courses to take. But this freedom is the freedom of the penny to fall heads or tails. Not thus should a man wish to be made free. He should wish to be made free by having true ideas of the consequences of his acts, right ideas of good and evil.

What may be retained from the dialogue, as sound, is that freedom does not exclude causation of the act of will, but rather requires it; that efficacy, unhindered efficacy, is the chief desideratum in a will; and that fatalism, the fallacy so commonly and so mistakenly deduced from determinism, is the voluntary renunciation of that efficacy in willing which is properly ours—is the death of will.

The following verses express what I take to be the correct attitude of the determinist.

CLOTHO, LACHESIS AND ATROPOS

The Greeks—the wisest of our kind—
Behind the Gods that sate
On high, descried a power blind
Whose dreaded name was Fate.

Its servants were the Sisters three—
The spinster for the dead,
The one that drew the fatal lot,
And she who nipped the thread.

Not every deed of human hand
At their behest was done:
The toils of men, the sports of men,
Their wiles beneath the sun.

But into every issue seen
An unseen issue crept.
The gaunt ones still were at their work
And spinning while men slept.

Hold, Sisters of the direful view!
Great though your might o'er men,
Yet what a brave man tears from you
You cannot take again.

V

A CREED FOR SCEPTICS

THOSE who have kindly given their attention to my theory of knowledge and to my speculations on being and becoming may naturally wish to hear, from my own lips, what I conceive to be the last word of this naturalistic philosophy, and particularly its bearing on morals and religion. I respond more than willingly to this wish. I should like to tell the universe what I think of it, before I die. Or rather, since the universe, in my view, is not a being that can hear, I must content myself with telling what I think to my fellow-men.

What I *think*. I have toiled for fifty years at the foundations of philosophy, in the hope of making them a little more solid, and have come to conclusions that seemed to me to be true and proposed theories that I thought solved some important problems: though convinced in my own mind that I was discovering truth, who of us knows his secret intellectual sins or is aware of his cherished errors? The clearest reasoner must be, in the final review, a sceptic, and admit, with Socrates, that he does not definitively *know*.

It would be a mistake, none the less, not to feel reasonable confidence in the probable knowledge offered by natural science—for instance, in the physical theory of electrons or the biological theory of genes; and if, as I cannot but believe, the nethermost questions of philosophy (such as the nature of perception) are capable of receiving, and ought soon to receive, a scientific answer—experts being agreed—that answer when it comes would be entitled to equal acceptance. An agreed scientific philosophy would command respect, and impose itself in the end upon all reasonable persons—upon those who are able to follow the processes of philosophy and of science, as their probable knowledge; upon the unscientific and unphilosophical, as a matter of faith; but upon both, in some degree, as a creed.

But a creed should not be purely intellectual, it should contain a moral element; and here a difficulty arises. I wish to avow frankly my opinion—the reasons for which will be given later—that the universe as a whole is morally indifferent. If so, it might seem that human morals are without a basis—that there is no objective and universally valid difference between good and evil. I take the contrary view to this, and shall endeavour to show that the difference between good and evil has a fixed and unalterable basis, despite the indifference of Nature. This view, if I can establish it, will be the moral element in a Creed for Sceptics.

•

I

I see no reason to think that the universe was created or came into existence at a moment of past time. Creation—unless we mean by it the continual production of the later by the earlier—is unexampled, a mythical idea without any correspondent in experience; whereas continuance is matter of experienced fact.

It follows that the universe always existed, and always will exist, rolling onward with an unceasing movement. Logicians tell us that there is no fallacy in this conception of infinite past and infinite future time. It is only amazing to the uninstructed mind. It baffles us because of our habitual assumption that everything had a beginning; but every beginning known to us had antecedents that produced it.

That the universe is as boundless in space as it is beginningless and endless in time, is an idea even more flooring than the other. Yet I know of no considerations that contradict it. The “curvature” of space (which I cannot clearly think) seems to me probably a misnomer. Meanwhile all the space we have ever experienced was continuous. Why should the infinity of space be more incredible than its infinite divisibility?

Thus the universe seems to me to be a self-sufficient and in its nature going concern, and the idea of anything outside it to be baseless and illusory.

The word universe implies unity, and one easily slips into the notion that, besides the obvious many, there is a *one* that holds

them together. The reality of the many may even be merged and lost in the superior reality of the one. This is a view of things dating originally from the belief that the universe either is or was caused by a spiritual being, and that it owes to this fact its order. It conceives the orderliness of things as needing explanation.

Is it consistent with a philosophy based on experience to attempt to *explain* the orderliness of the world, any more than to explain its existence? The existence of the universe is an ultimate fact, of which there is and can be no explanation, because the universe is not derived from anything else but is self-sufficient. The same is true, it seems to me, of its order: this does not require an explanation, because it is not derived from any source distinct from the universe itself. It is simply an ultimate fact, which must be accepted.

If, confining ourselves to what experience shows, we accept order simply as a fact, no unity binding the universe together remains, and it falls apart into a multiplicity of conspiring and conflicting forces. The number of these forces is as great as the number of the parts into which space is divisible, which appears to be infinite. Within this continuous field of energy, parts greater and less may be grouped in ways which ensure the existence of *quanta*, to accord with whatever laws physics may establish.

What, on this view, binds the universe together is not a unity distinct from the multiplicity, but the interaction of its parts. As time owes its continuity to the action by which the earlier produces the later, so the continuity of space lies in the interaction of neighbouring forces. *All connexion between things is actional*. Or, to express the same idea otherwise, there is no unity but only continuity.

Such is the idea of the existent which commends itself to me as conforming most closely to the evidence of experience.

Unity of a spiritual sort is made by the mind. When two distinct existents are viewed in relation, the mind has before it a unitary datum which does not exist in the real world but is true of it. That is to say, the relation is a sum of infinitesimal part-connexions which exist, or a mental confrontation of similars or

dissimilars each of which in existence simply possesses its definite character. Such is the account I should give of space and time relations on the one hand, of relations of likeness and unlikeness on the other. I wonder if relations different from these are not complexes of these, formed by combining them in various ways?

Relations, then, do not exist in Nature; but infinitesimal part-connexions—junctions between adjacents in space and time—do exist, or rather happen as modes of action.

Heraclitus seems to have been right that strife is the father of things. These are distributed at each moment in groups of varying force; the groups strive with varying success according to their force, and meet each other according to the accident of their spatial relation, that is, by chance.

Chance loses its empire when it leads to groupings having self-perpetuating forms—the atom, plant and animal organisms. The form is not active, but describes the mode of activity of the parts arranged in it. When chance leads to sense-organs, brains, and muscles, it overpasses itself and becomes conscious vision and purpose.

2

My view that the universe is not a spiritual being results from my theory of consciousness. If consciousness arises by sensory states evoking motor responses that deal with objects, and so being made to signify these—things which occur only in animal organisms—the universe cannot be conscious; for it is not an organism in this sense.

Most philosophers immensely exaggerate the importance of consciousness in the world. It is probably a rare accident, inevitable under the conditions, but without cosmic significance. Because *we* see everything through spectacles of consciousness, *we* imagine that nothing can exist in the absence of spectacles; but this is human self-importance, an amusement to the gods.

Another proof that the universe is not a spiritual being is the observed character of things and events. The wind blows and the waves dash without a reason. Let a man note what happens through the years—earthquakes, floods, pestilence, wars—and

ask himself whether it is conceivable that a world in which such things are possible was created by or proceeded from a mind: he must in honesty answer, No. Let him ask the same question regarding specific human ills. Insanity—how can goodness or intelligence have produced that cruellest and most debasing of inflictions? The different forms of disease, the innumerable varieties of insects in tropical forests, the sea which covers far more of the earth's surface than the land, the stars that are so beautiful to look at but so devastating to think of, the vast desolation of interstellar space—all prove that the universe was not made for man or by a being like a man, but *is what it is, an ever burning fire.*

The excuse that evil serves a moral purpose, though in fact it sometimes does, is a subterfuge; refuted by the disproportion and maladaptation of the means to the end. It is futile to reflect how we would alter the scheme of things if we had the power; we lose ourselves at once in vagueness. We are products of just such a world as this, and should be out of our element in any other.

Do not think, dear reader, because I have stressed the darker side of things, that I take a dark view of human life. Pessimism has always been as repugnant to me as optimism, and I persist in thinking that life to a reasonable person (not unduly persecuted by fate) is livable and worthy to be lived. If possible ills are many, we have a limited power of avoiding and an almost unlimited power of bearing them. Life, as known to most of us, is a sheltered and on the whole a pleasant thing; for we live, not in the world in its natural state of savagery, but in an environment made by man. With increasing rapidity this human world is being perfected and made more fit to live in—and it might shortly be a paradise, were it not for the elements of savagery and unintelligence that still persist in many men.

3

Let us turn from Nature to human nature, and assess its moral prospects.

Those who think of human nature as fixed, though in a sense

they are right, do not always justly estimate the counterpoise to natural wildness—I mean, social tradition and custom—and the unfixing and fluidity which these may cause when imbibed by the individual mind. Their first result is doubtless a further fixing, but with reflection in a free community fluidity returns, and there seems to be no limit to the alteration of man's savage nature which may ensue. This consideration should give us hope for mankind. But only on condition that men take their fate into their hands.

At this point the question of free will has a relevancy. Are we, or are we not, able to direct our future course? The question may appear absurd, for, if the individual can decide to turn to the right or to turn to the left, to improve his fortunes or to rest on his oars, what can prevent collectivities from having the same power? No theory of free will or denial of it can alter the fact that, in the only important sense, we *are* free.

What is this sense? It is that of being able to do what we like, if we are not prevented. Moral freedom is of the same kind as political freedom. Such freedom is entirely consistent with determination by the past; and possible, because each person, besides being caused, is a cause, and a more or less adaptable one according to the range of his ideas, which can determine the future. To put it otherwise, though everything is fated, a man himself is a portion of fate, and the most important portion in what concerns himself. Blessed be causation, which by being universal ensures that our wills should have gratification. That their character at each moment is determined partly by heredity and partly by the influences that have acted on us, need not distress us.

Freedom to choose exposes us to the necessity of accepting the consequences of our acts. Here causation in Nature comes nearest to the recognition of a difference between good and evil, to a judgement on the transgressor and a reward to him who does well. Let it be duly recorded that, in passing judgement upon human acts, Nature holds the scales with the strictest impartiality.

4

The sudden uprooting of traditional beliefs, on which morals have been thought to be dependent, leaves many persons with a doubt whether there is any real difference between good and evil. The view that the universe as a whole is morally indifferent may seem to justify this idea, and to invite or allow a similar indifference on the part of men.

Yet, in personal morals, the difference between good and bad remains clear—it is bad to eat or drink in a way that undermines the health, it is good to live soberly and decently. That disease is an evil and health a good is objectively true. Why? Because the human will to be happy and not to suffer is unalterably fixed.

The will not to be made to suffer by other persons is equally fixed. It leads to our calling a man who makes us suffer, bad, and a man who makes us happy, good. We soon perceive that there is reciprocity in these matters, and that by being good to others we can make them good to us. Indeed, it is not perception merely that leads to this tendency in us, but evolution, before it, had bred a restraint from inflicting evil and a predisposition to be kind, because they were necessary to life in society. Indulgence of the feelings that accompany these impulses is called sympathy.

If decent conduct is necessary to life in communities, love, of its various kinds, parental, filial, brotherly, sisterly, is requisite to the life of the family; and the love of the sexes to its first foundation. Social good will and family affection, being analogous, tend to encourage and support each other.

There is thus a *natural direction of the human will*—present in us, paradoxically, without our volition—to balance the direction upon conflict with other men which is also, given the appropriate circumstances, just as naturally present. Conflict results, more often than not, from the limited supply of goods; and might therefore be abolished if the supply were indefinitely increased, the instinct to fight remaining in abeyance.

From these considerations it results that there is, after all, an

objective basis for morals, in the fixed and unalterable character of the human will. It matters not that Nature is indifferent to the difference between good and evil, if human nature insists on recognising it. The fixity of human willing supplies a standard as valid and changeless as could be desired.

Once this standard is recognised, by men advancing in comfort and intelligence, conformity to it becomes the object of moral culture. Conscience—the awareness how far one has conformed—becomes the guide of the inner life. Goodness in action is seen to be as imperative as truthfulness in thought.

•

5

Let no one say that instinct is not a sound basis for morals. Our instincts are ineradicable, they are the deepest things in us. The instinct to care for one's children, to be just to one's fellows, may cause remorse if the acts to which it prompts are not performed. In sensitive natures a need arises to conform action to these good instincts, and to have the evidence of memory that one has done so. But one never has done so completely, and in all cases; whence the secondary need for contrition, with its result of a better life ensuing, and for due humility. One half of religion, the half not superstitious, consists in prosecuting these ends.

Nor is the objection pertinent that there are bad instincts as well as good, and that they have equal authority. If you were born a tiger, be a tiger. But most of us were born men, and cannot alienate completely our good instincts. Experience, moreover, teaches that they were good for definable reasons; and on the whole we feel that it is better to love than to hate, to be peaceable than to fight. The experience of mankind demonstrates that morals, as commonly understood, rest on a sound basis.

The following verses may serve to sum up this Creed, if the reader will excuse something a little high-pitched in their tone: •

ON ULTIMATE QUESTIONS

Mad prophets, who, enthroned in Church and State,
 Of matter and of spirit dare to prate:
 What about these deep issues do you know?
 You speak as knowing—but who told you so?

I'll tell you. 'Twas the fores of such as you,
 Who hoped, and feared, and wild conclusions drew,
 And—not knowing they knew not—thought they knew.
 And their false prophets' mantle has fall'n on you.

You say spirit is real, but ethereal:
 And, all the while, you mean it is material.
 You say men cannot, of themselves, know truth:
 Do you yourselves then know it, in good sooth?

Truth is for those who seek it. By the toil
 Of countless seekers, glad to search and moil,
 The truth about the world and man—
 Yes, about good and ill—
 Has now been known by men for quite a while;
 'Tis mounting still,
 And every day adds to the sacred pile.

*Man is a creature queerest of the queer,
 Not to another in Nature very near,
 And only to himself most dear.*

*Good is what's good for man. A man is good
 If to his kind he's good. All are his fellows!
 Nature's not kind. She's heartless quite and rude.
 This truth each day indifferently bellows.
 At last the sense of human brotherhood—
 Best fruit of all the ages—ripens and mellow.*

One truth—you are not heartless—you have guessed,
 And have not left quite unexpressed:
 In all the world, around, below, above,
 Naught is divine but heavenly Love.

PRINTED IN GREAT BRITAIN
BY R. & R. CLARK, LIMITED. EDINBURGH

